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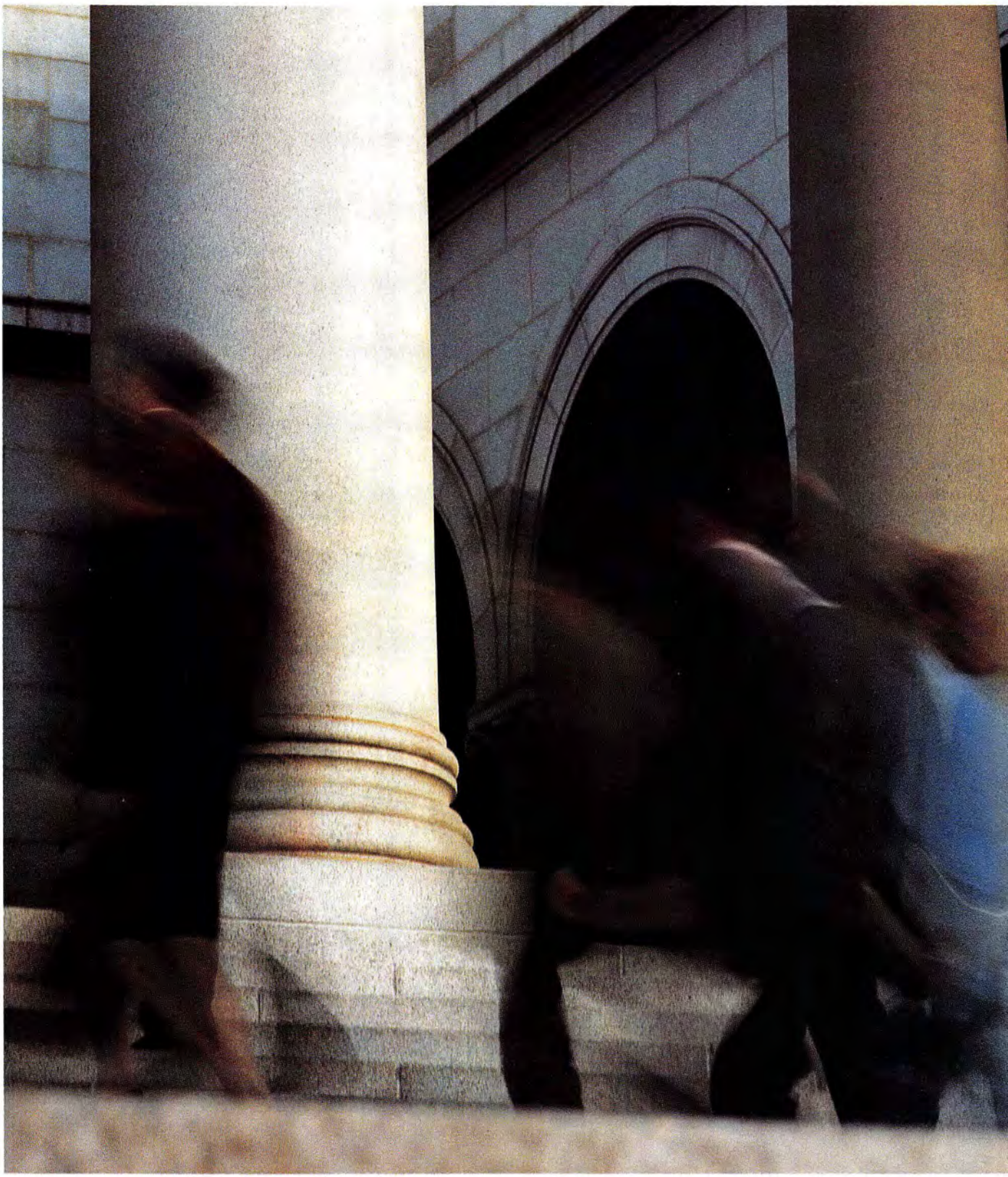
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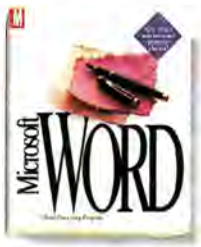


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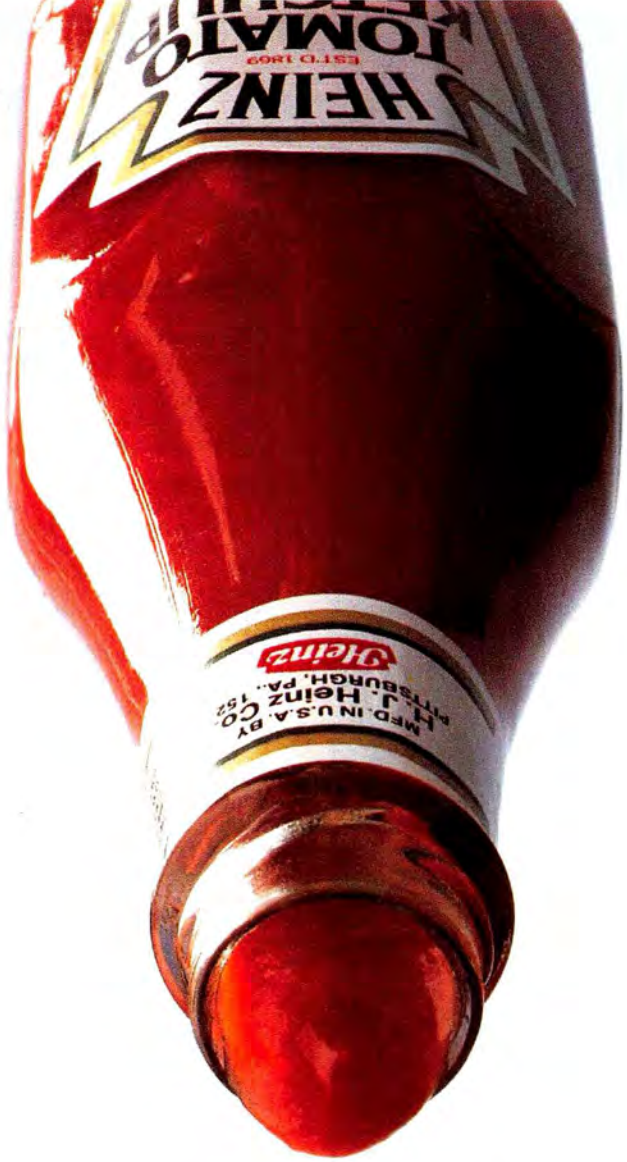
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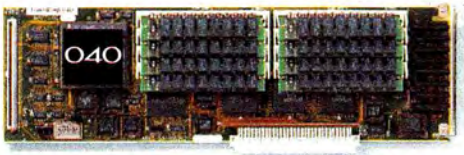
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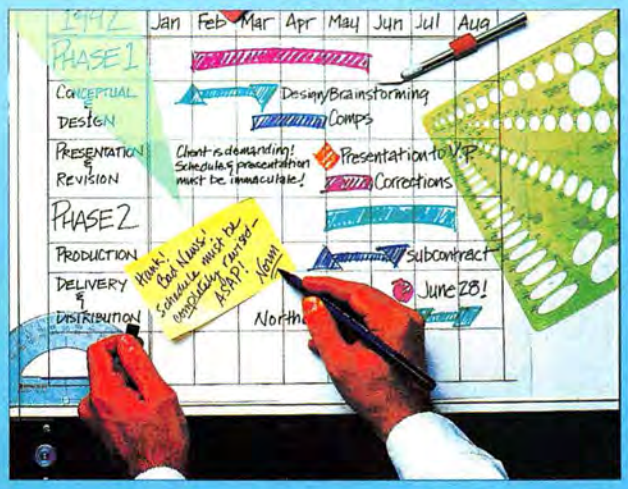
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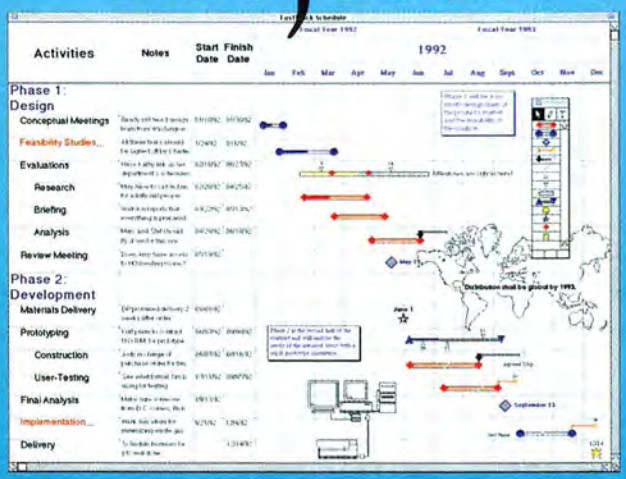
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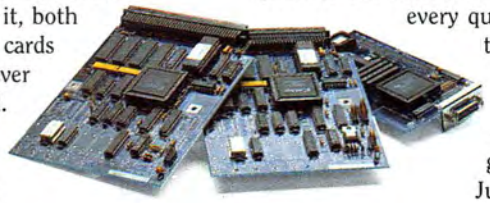
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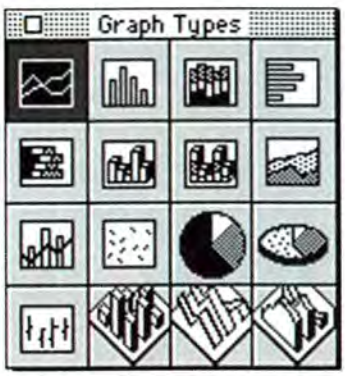
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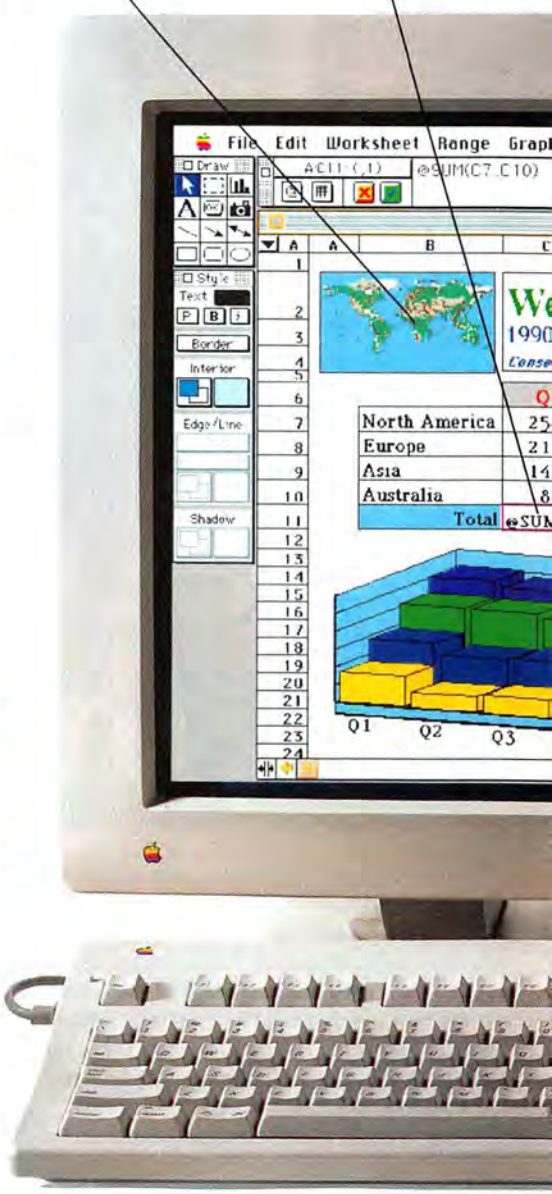
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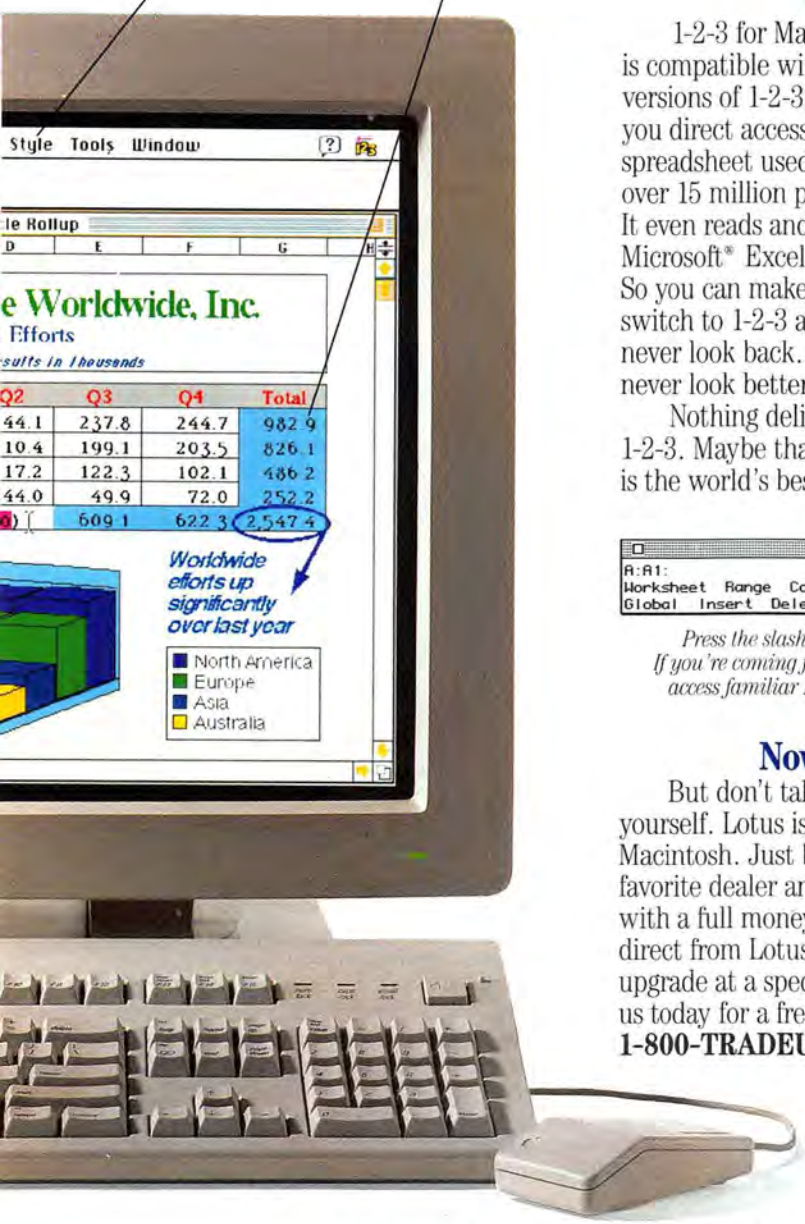


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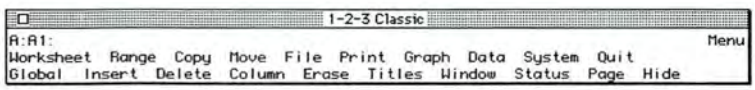
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But don't take our word for it. See 1-2-3 for Macintosh for yourself. Lotus is offering a no-risk proposition for 1-2-3 for Macintosh. Just buy a copy from your favorite dealer and try it for 60 days with a full money-back guarantee direct from Lotus (Excel users can even upgrade at a special price). Or, call us today for a free demo video at **1-800-TRADEUP, ext. 6438.**



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About MacUser

The Face Behind the Eddy

It's that time again — time for the most exciting and anticipated Macintosh event of the year: the announcement of the winners of the 1991 *MacUser* Editors' Choice Awards (familiarly called the Eddys). It's the culmination of another year of researching, testing, and benchmarking newly released Mac products. For the editors and the nominees, it means a gala night of champagne and tuxedos to recognize and honor the year's most outstanding products. For our readers, it means another product-packed roundup of the best and most innovative products the Macintosh industry has to offer.

In truth, though, the Eddy Award process involves more sweat than champagne.

It all begins with research. Just keeping track of newly shipping products and their prices, shipping dates, version numbers, and similarities to and differences from other products is no mean feat in this ever-expanding Mac universe. That expansion is the work of hundreds of inspired third-party hardware and software developers who have filled in the sketch Apple drew back in 1984 with the introduction of the Mac. The best of their products stand tall in the minds of Mac users.



Assistant editor Michele Hasson doesn't let the Eddy Awards overwhelm her.

But at no time do they stand taller than the stack of products piled next to assistant editor Michele Hasson's desk during the months in which we put together the Eddy Awards issue. Michele has honed to a fine art the process of tracking down elusive details without tipping off vendors that one of their products is in the running for an Eddy (the list of potential nominees is kept top secret). Working closely with senior editor Aileen Abernathy, who produces the final Eddy Awards manuscript, Michele confirms each detail, checks and cross-checks feature lists and version numbers, and gets all the products in the door for physical examination.

Eddy evaluation is actually a year-long process, involving hundreds of product demos and thousands of hours of hands-on appraisal. As the Eddy deadlines approach, the *MacUser* editors rely heavily on Michele's research and mountains of data to come up with the year's categories and nominees and, ultimately, to select the winners.

Life would be easier for us (and especially for Michele) if we simply based the awards on best-seller lists or reader polls, but the Eddy Awards aren't about popularity. Ours is an industry built by third-party developers, many of them too small for their products ever to make it onto best-seller lists until someone seeks them out and tells the world about them.

And nothing tells the world about a top-notch Macintosh product like an Eddy Award does.

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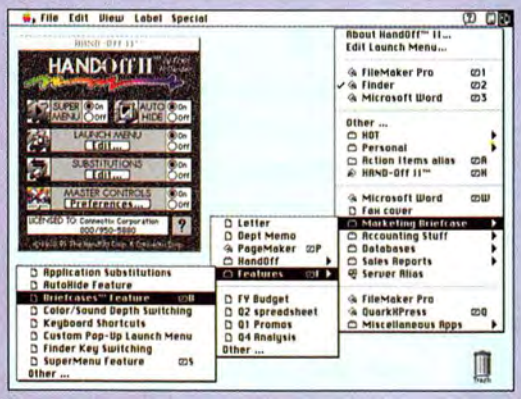
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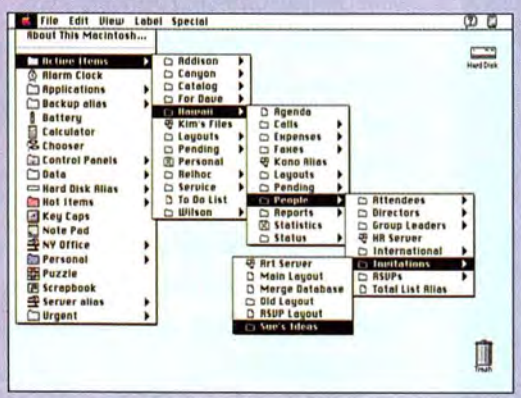
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You can also pre-assign substitutions (even for DOS files) and open them with your preferred application.

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"It's a good value and a useful addition to any Macintosh."
- MAC BUYER'S GUIDE

"HAND-Off II will automatically locate and launch the proper application even if it has been moved or renamed."
- MACWEEK

"This utility is definitely in a league with Suitcase II and it's indispensible."
- MACUSER



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CIRCLE 62 ON READER SERVICE CARD.

LETTERS



Guy Kawasaki's mission in life, at least according to his November '91 column (page 29), is to make the world a politer place. In that article, he cataloged several popular sideways symbols — such as a smile :) and a wink ;) — to make electronic-mail messages more friendly. Peter Coleman, of Glen Allen, Virginia, sent us some additional symbols:

!)	*Sensual wink*
:–>>	*Double chin*
: {	*Fu Manchu*
(*)	

We'll leave the meaning of this last one up to you, but if you interpret it the way Peter does, it won't fit in with Guy's hopes for a kinder, gentler E-mail system.

✉ *Write to Letters to the Editor, c/o* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac, our on-line service.*

All letters become the property of MacUser, *and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.*

Adding Paper

Here are some more suggestions for readers such as Daniel B. January (Letters, December '91, page 16) who are looking for specialized printer-paper options. The No. 1 paper for the Hewlett-Packard DeskWriter (and probably other inkjet printers) is Classic Linen, from Neenah Paper. I use Solar White. It's pricey but worth every penny. It's far superior to Neenah's Classic Crest, listed in "The Paper Trail" (March '91, page 181). Users who want a little color in their lives will love the palette of Brite-Hue papers. Skip the Astro Bright — the ink will bleed. Another excellent choice for colored stock is Hammermill Paper's Offset Opaque Vellum in muted tones only (tan, steel blue, ivory); the bright colors and plain white contain a different fiber content, and the results are disappointing. Hammermill's Laser Print is an inexpensive, bright-white paper, but it's sensitive and has to be protected from moisture. Keep it wrapped, and take out only as much as you need for each print job.

Marcy Poulos
Sparta, MI

If you have trouble locating distributors of these specific brands in your area, try calling the manufacturers: Neenah Paper is at (800) 558-5061 or (414) 721-3158; Hammermill Paper's numbers are (800) 242-2148 and (901) 763-7800. Brite Hue is made by Ward Paper ([800] 365-3413 or [715] 536-5591). Astro Bright is made by Wausau ([800] 950-9767 or [715] 675-3361). — NP

Go Buy the Book

In your January issue ("Anything is Possible," page 29), Guy Kawasaki quoted someone to the effect that BMUG once refused review copies of *The Macintosh Bible.* This is nonsense, as Guy would have discovered if he'd bothered to check the story with me. We must have given BMUG a dozen review copies of the latest edition (as well as of earlier editions). BMUG *bought* more than $6,000 of our books last year.

Although there's no love lost between certain members of BMUG and myself, the BMUG Newsletter has repeatedly raved about *The Macintosh Bible,* most recently in the Spring/Summer 1991 issue, which called *The Macintosh Bible* "indispensable" (amid other praise). More than a hundred publications agree, which is one of the reasons why there are now 565,000 copies of *The Macintosh Bible* in print.

In the same column, Guy implied that Goldstein & Blair only publishes books by me. He knows that's not true, since he once sent me the manuscript of *The Macintosh Way* for consideration.

Quite aside from the fact that two of the three editions of *The Macintosh Bible* had principal authors other than myself — and that every edition had dozens of contributors — we've published three books by Charles Rubin: *The Macintosh Bible "What Do I Do Now?" Book* (now in its second edition), *The Macintosh Bible Guide to System 7,* and *The Macintosh Bible Guide to FileMaker Pro.* These books are

Dear Mr. Gates . . .

We can't understand it. Microsoft has products that rate among the best-selling Mac software, it's released a new Flight Simulator that has color, and its CEO is among the world's most eligible bachelors. What more could you want? Judging from your letters, Microsoft is the J. R. Ewing of the computer world, the company you love to hate. What has it done to get on your bad side?

Speak Up:

What can Microsoft do to get back in the good graces of Mac users?

The hot topic this month in letters to Mr. Sculley, in response to our December "Speak Up" question, was the endless search for a more intuitive interface. The suggestions range from minor tweaks to science fiction.

Robert J. Lang, of Pasadena, California, feels that "in most respects, the Mac has an intuitive interface. The biggest exception is the Trash, which for disks means 'I'm done with this; please return it to me intact' and for files means 'Remove this thing from existence.' To fully appreciate the lunacy of this double meaning, just imagine the havoc that would ensue in DOS-dom if the command for deleting a file were 'delete a:filenam.*;*' and the command for ejecting a disk were 'delete a:'. A more intuitive action for ejecting a disk from the Mac would be to simply drag it off the desktop."

Barry H. Friemel, of Durham, North Carolina, calls for drastic changes to create a more intuitive interface: "I've seen devices that detect light reflected off the retina that can track eye motion. Why not look at what you want and get it. If it's on the desktop, you can put it in a folder by blinking it there. Shades of "I Dream of Jeannie."

"And who ever said that a keyboard was intuitive? An intuitive user interface would involve what we always do, what we learned to do first — talk. Or write. Until voice recognition or the direct brain interface comes of age, there's not much better."

Documenting procedures just got easier

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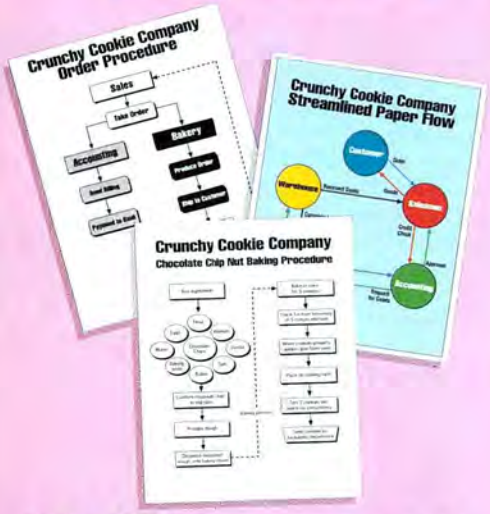
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hardly unknown, since together there are more than 200,000 copies of them in print. In addition, we have many books by other authors in the works.

Guy has praised *The Macintosh Bible* on several occasions. Do I have to praise his books in return — or publish them — in order not to have him take cheap shots at me?

Arthur Naiman
Goldstein & Blair
Berkeley, CA

100 and Counting

I was abashed by one omission from your list of "The *MacUser* 100" (December '91, page 129). I can understand why you didn't include ZTerm, I can understand why you didn't include Norton Utilities, and I can understand your omission of SuperClock!. But omitting Disinfectant! Egad! How could you? Not only is it considered one of the best antiviral utilities but it falls into that ever-decreasing and most amazing category of software known as freeware. Tsk, tsk.

Chuck Scheffreen
Marblehead, MA

"The MacUser *100" is not a roundup of the "best" products but rather a grab bag of budget-priced goodies, both offbeat and practical. Because of the plethora of eligible products, we focused on those that were new in 1991. We agree, Disinfectant is an excellent antiviral utility, and it appeared in last year's* "MacUser *100" (page 143). — AA*

We think a ResEdit book/disk combination is a great gift suggestion, but because there are two ResEdit books available from Addison-Wesley, you've got to make sure you recommend the right one. At less than 200 pages and written for programmers, *ResEdit Reference* is hardly the best gift choice. It doesn't start with the basics, as "The *MacUser* 100" (page 142) stated.

For the same price as the *ResEdit Reference*, there's a 500-page book — *ResEdit Complete* — aimed at general users as well as programmers. It includes at least as much detailed information for programmers, but it's also a task-oriented guide loaded with tips, tricks, and customization projects. It's a far cry from a manual, and we're not the only ones who think so — *ResEdit Complete* continues to appear on computer-book best-seller lists.

Peter Alley and Carolyn Strange
Authors, *ResEdit Complete*
Saratoga, CA

Talk about frustrating. When I called the toll-free number you listed in "The *MacUser* 100" for the 3M Head Cleaning Diskette Kit (page 136), I had to go on a wild-goose chase. It seems that 3M doesn't know where I can purchase the kit, the dealer 3M referred me to doesn't know, and my local Apple dealer's never heard of it. In addition, my Apple dealer hasn't heard of Connectix's MODE32.

E. Rogers
Lexington, KY

Hasn't heard of MODE32 or the 3M Head Cleaning Diskette Kit! Maybe you should find a new dealer or at least tell your current one that MODE32 is being given away by Apple to anyone who needs it. (It gives 32-bit cleanliness to the SE/30, II, IIx, and IIcx.)

Try (612) 736-5176 for a more direct connection at 3M. — NP

The Politics of Networking

When I read "Maximum Mac Management" (October '91, page 183), I noticed a strange coincidence. Many of the nodes in Figure 6 on your network have the names of some of New Zealand's most notorious politicians. Maybe some of our politicians — past, present, and deceased — are moonlighting at MacUser Labs!

Stephen Connor
Auckland, New Zealand

At War with Dove

Although *MacUser* gave the DoveFax four mice ("Fast, Full-Featured Fax Modems," May '91, page 104), one of my clients ordered one from me and discovered that it didn't work when he tried to send a PageMaker document with tracking. Oh, what a jumbled mess.

Dove's tech support told him to turn tracking off. It should get an award for that great suggestion. I bought the device back from my customer, and it makes a nice paperweight. Boo to *MacUser* for not finding a serious and obvious flaw. Does anyone really review this stuff, or do you just rewrite press releases?

Rob Teeple
Middletown, PA

You do have to turn off tracking to send a PageMaker document, although this is not true of other programs such as Ready, Set, Go! and QuarkXPress 3.1. And yes, we really do test products quite extensively. MacUser Labs often finds and reports on bugs in products. In fact, many bugs are already fixed by the time you read our reports, because we've informed

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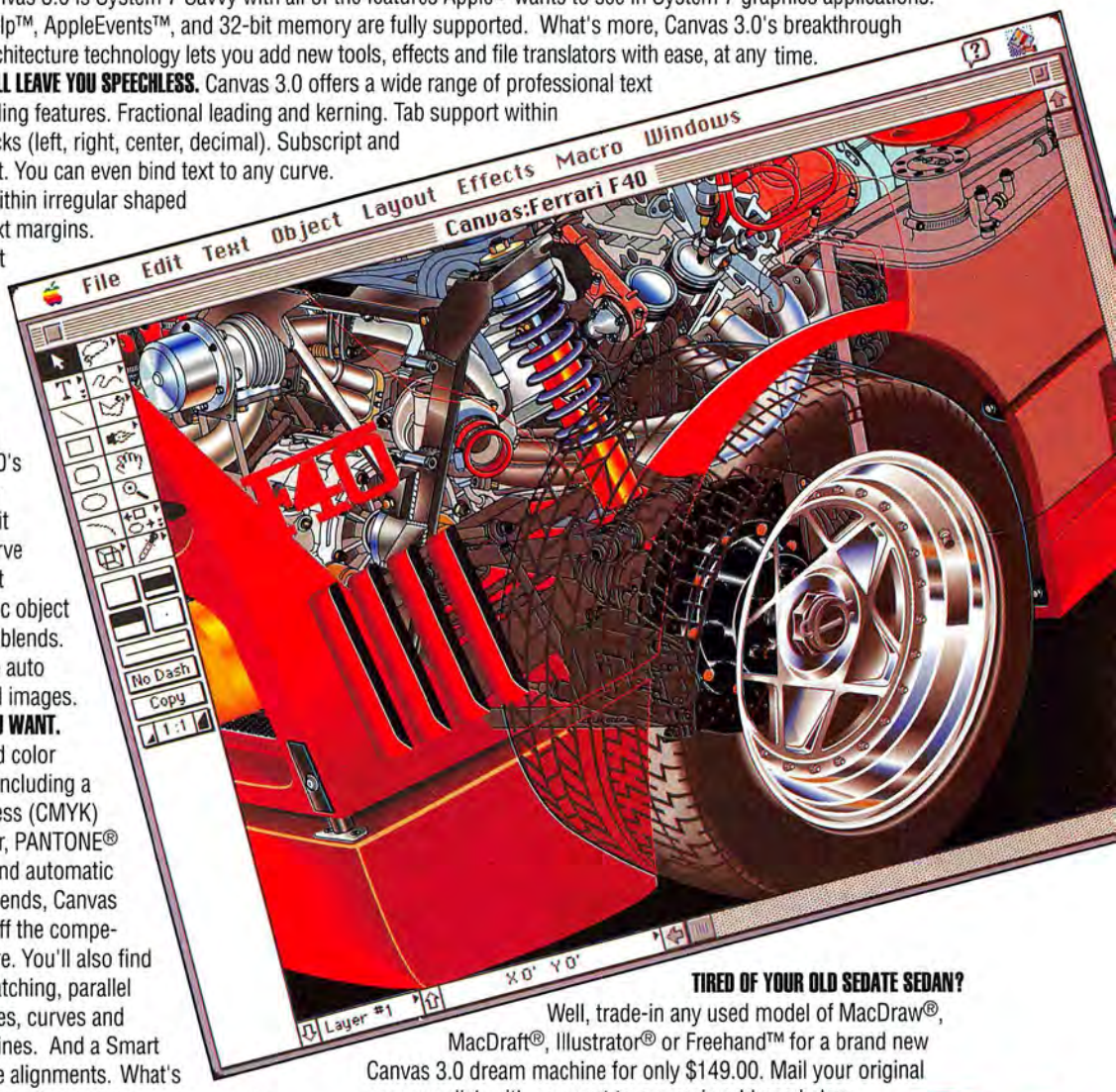
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NOTHING HANDLES CURVES BETTER. While other drawing programs make you draw Bézier curves by "connecting the dots", Canvas 3.0's freehand tool lets you create any curve by simply drawing it. And it gives you unparalleled Bézier curve editing power -- from multi-point selection and editing to automatic object conversions, combinations, and blends. You even get centerline auto tracing of scanned images.



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Well, trade-in any used model of MacDraw®, MacDraft®, Illustrator® or Freehand™ for a brand new Canvas 3.0 dream machine for only $149.00. Mail your original program disk with payment to our main address below. Include your MC, VISA or Amex card number, account name and expiration date, or a check in US dollars drawn on a US bank. Add $10.00 shipping. Offer valid in the United States and Canada. Expires on 3/31/92. Please allow four to six weeks for delivery.

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vendors about such discoveries. However, we can't try out every possible scenario. That's why we also print letters such as yours. — HB

Isle Be Back

Wait a minute! As much as I love my applications and utilities, I don't think I'd find them very useful if I were on a desert island, unlike the editors who contributed to "Desert Island Diskettes" (December '91, page 146). You might convince me that if Steven Bobker has his cellular modem, some of the "real" programs might be useful, but give me a break! If these guys really want such things as spelling checkers, I'm glad I'm not on an island with them.

Missy Allemang
Lenoxdale, MA

We avoid company cruises for the same reason. — NP

Small Steps

Steven Bobker, in "Beginner's Bucks" (November '91, page 205), remarked that people who steal software shouldn't read any further, meaning that they should go jump in a lake. I think the most important concept to get across to users is that they should pay for at least *some* of their software. Don't get too uptight when people copy disks full of applications from friends; the programs probably won't be launched more than once or twice. Just get users to accept the idea that, at least on some occasions, the only appropriate way to acquire a program is to buy it.

Tom Tamlyn
New York, NY

Steven Bobker has it all wrong. In "Beginner's Bucks" he asserts that you'll spend as much in the first year on extras as you spent on your original investment ($2,700 in his example). If you're smart, you'll spend considerably less. Immediately adding more RAM may be a necessity for power users, but beginners should forget it. Among my friends who have Mac Pluses, MultiFinder is seldom if ever used. Unless you install System 7, there's no great need for gobs of RAM. What application programs do you need? As multitudes of beginners can attest, a low-cost integrated package such as Microsoft Works is entirely adequate for 99 percent of their projects. Sophisticated backup procedures are nice, but what's wrong with a good old floppy? If you have a hard drive, a program such as Norton Utilities is a necessity. But, that's about all you really need in order to get up and running during the first year.

Bill Plumley
Laguna Beach, CA

Scanning for Errors

I ran into several inconsistencies in the color-scanner review by Bruce Fraser and Paul Yi ("Capturing Color: 24-Bit Scanners," December '91, page 152). Toward the beginning of the article was a statement that all the SCSI-based scanners came with two SCSI ports and external termination. When I reviewed the features table, however, it showed that the Epson, La Cie, Tamarack, and UMAX scanners were internally terminated and that the UMAX unit had only one SCSI port. The text had references to the UMAX's confusing software interface, but the table stated that it had no proprietary software. I had hoped that this article would give me some idea of which scanners to evaluate, but I'm no better off than I was before.

Erik Ableson
Hull, Quebec
Canada

What we said was that all the scanners have either external or removable termination. The UMAX and the Tamarack scanners are externally terminated, and the Epson and La Cie units have removable internal terminators, giving them more flexibility on the SCSI chain.

On the issue of SCSI ports, the table is correct — the UMAX scanner has only one port. However, the pass-through SCSI cable that comes with the scanner gives it the functionality of two ports. The UMAX scanner does have proprietary software, a Photoshop plug-in. — BF

More Than Our AppleShare

Your article on the AppleShare 3.0 Server ("A New Way to Share," December '91, page 199) states that AppleShare 3.0 "is long on features but short on performance." Although the primary design goal for AppleShare 3.0 was to add the high-priority features users have requested, we don't intend to deliver a server that offers slower performance than AppleShare File Server 2.0. In fact, the performance testing on a near-final version indicates that version 3.0 performs virtually the same as 2.0.

Beta software contains debugging code and is often not performance-optimized. We seed beta versions of software products so that their features can be assessed,

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but any performance comparisons based on that software can frequently be grossly misleading.

Scott Petry
AppleShare Product Manager
Apple Computer, Inc.
Cupertino, CA

We apologize for any misconceptions attributable to our first look at AppleShare 3.0. We attempted to make it clear that we were testing beta software, but perhaps that disclaimer was inadequate. We plan to retest AppleShare 3.0 when the final version is released and will report the results in a forthcoming issue. As always, readers are advised not to base their purchase and upgrade decisions on beta-software evaluations. — HB

Mac Poet's Society

There were two glaring inaccuracies in Steven Bobker's "Work Smart, Work Safe" (December '91, page 221). The most grievous was to suggest that there are no effective treatments for carpal-tunnel syndrome. As Bobker suggested, avoiding injury is best, but this approach is too limited. It's known that vitamin B6 can help significantly. A properly selected homeopathic remedy should be effective in reestablishing healthy functioning.

Also, the condition of hearing ringing in the ears is known as tinnitus. It should not be confused with tintinnabulation, which is one of the most classic examples of onomatopoeia.

From the poem "The Bells" by Edgar Allen Poe:

"Keeping time, time, time,
In a sort of runic rhyme,
To the tintinnabulation that so musically
wells from the bells, bells, bells, bells,
Bells, bells, bells."

Harry F. Swope
Studio City, CA

Of course, you and the others who caught the switch of terms are right. The ringing in my ears must have distracted me momentarily. But as for homeopathic cures, although a significant number of people believe in their efficacy, an equally significant number do not. — SB

Mathematical Expressions

I take strong exception to your review of MathWriter (November '91, page 87). As a professional mathematician and writer, I've found it to be a powerful program with an incredible number of features that are unmatched in any other word processor. The principal innovation is that mathematical expressions are instantly displayed in the text, in contrast to the way they're handled in all other Macintosh word processors, most of which require pasting in an expression created outside the document. MathWriter lets you edit mathematical expressions as you would the rest of the text. The bugs are minor compared with the overwhelmingly positive features of the program.

Leonard Gillman
Austin, TX

You should reconsider the 2.5-mouse rating you gave MathWriter 2.0. In particular, I think your main criticisms — and there were precious few, considering the mediocre rating you gave it — were unjustified. A simple tip on slow screen updates should improve things dramatically. Because colors are seldom needed in technical documents, turn off the colors under Monitor in the Control Panel.

Too many menu choices? Well, do you want lots of features or not? If you find the 9-x-15-item Palettes menu intimidating, convert your favorite few rows into a detachable, movable menu. You also forgot about using keystroke equivalents for most menu selections.

You don't have to delete and retype a whole expression to make it a numerator! In MathWriter 2.0, cutting and pasting an expression into either a new or a previously defined fraction works just fine.

MathWriter is not perfect, but speaking as one who used it to write a dissertation that contained hundreds of equations, I can assure you that it is truly a quantum leap in technical word processing for practicing scientists.

Steven R. Lantz
Ithaca, NY

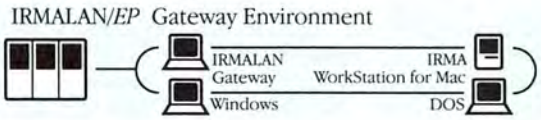
I was aware that you could use cut-and-paste as a partial workaround to the problem with editing fractions. However, this method is clumsier than the direct editing that's possible with other equation editors. Also, the availability of keyboard command equivalents, which nearly all Mac programs have, doesn't compensate for poor menu design.

You are clearly satisfied with MathWriter. A mediocre rating does not imply that the program is ill suited for everyone. For a long document with many equations, MathWriter can be a time-saver. It does not excel as a general-purpose word processor, however, and falls short as an equation editor in comparison with standalone programs. — TL

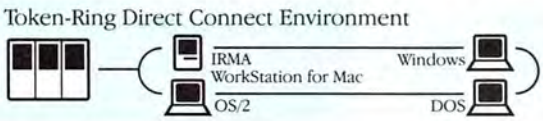


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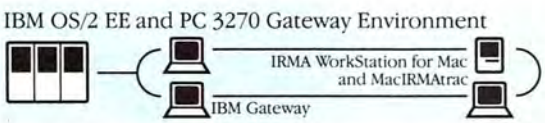
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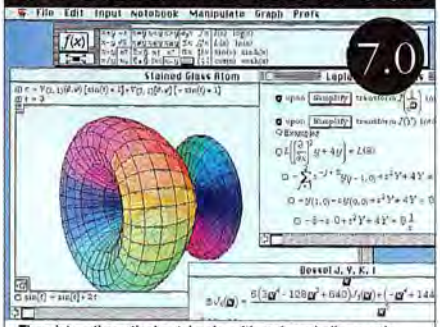
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– MacWorld *magazine, May 1990.*

– *Five mice review,* MacUser *magazine, June 1990.*

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LETTERS

DOScover

Guess what product took the kudos in the "Computer Software" category of the December '91 Discover Awards in *Discover* magazine? "For Technical Innovation" — Windows 3.0! To quote the article: "Designed to do away with key commands and replace them with on-screen icons and other prompts, Windows provides a colorful, visual method for manipulating programs and files." Gee whillikers! Why didn't someone think of this before? The only allusion to Apple in the whole spiel was a mention of *MacUser* in the credentials of one of the judges — some guy named Dvorak.

Gryfon R. Ketcherside
Saint Charles, MO

Nature Versus Dvorak

I don't know why I read John C. Dvorak's column, but at least he's right about intuition ("The Point-and-Click Clique," December '91, page 336). It is learned. We call the graphical user interface intuitive because it's so easy to learn that we feel we've known it all along.

This is bad? The computer we use at work is an IBM PC II or something. When I first opened the manual, all I saw was brackets, slashes, back slashes, and colons with an occasional command. After two years, I'm happy to say that I just figured out that a directory is like a folder on the Mac. Shortly after that discovery, I began navigating between directories. I even copied some files from a floppy to the "fixed disk" after creating a directory to put them in.

That's about it, though. I don't think I'd have understood any of this without having learned the Mac interface first. You see, it was about two years ago that I got a Mac, and it's been about two years since I learned how to use it.

Randall Wright
Wilton, NH

Sometimes I think John C. Dvorak's column should be titled "The Arrogance of Ignorance." He writes a whole column about intuitive interfaces without knowing what the word *intuitive* means. He thinks that it means the same as *instinctive* — it doesn't. Intuitions are the result of learning, knowing certain things so well that you don't have to think about them. If we lived our lives without intuitions, we would all be klutzy, indecisive robots.

Michael H. Goldhaber
San Francisco, CA

By John C. Dvorak's all-or-nothing definition, the only intuitive interface is the nipple. If you don't think that some interfaces are relatively more intuitive than others, you've obviously never had to assemble kids' toys on Christmas Eve.

Even if they aren't intuitive, consistent interfaces save time. A consistent interface is what allows you to learn to drive in your grandfather's Ford Fairlane and later buy a Honda without going through a training course.

Bennett Stackhouse
Newport News, VA

I agree that metaphors are hard to understand, but I don't advocate tearing up the status quo "rigid interface." We use Macs, because of the fairly well-defined interface, which helps my staff be more productive. Unbridled free change of interface expression would cause chaos. Useful and tempered change, such as System 7, while frustrating, is nevertheless tolerable. Because we agree that no interface is truly intuitive, why bother doing away with any?

Stephen DeNagy
American Falls, ID

Intuition, whatever it may be, is still subject to the whims of the individual. I intuit, for instance, that magazines are designed to be read from front to back; nevertheless, the first thing I always turn to when I get *MacUser* is Dvorak's last-page column.

Dennis Stacy
San Antonio, TX

Clarifications

In the December '91 article on Macintosh notebook computers ("Introducing: The PowerBooks," page 104), the daughterboard that appears in the upper right corner of Figure 3 is labeled incorrectly. The correct amount of RAM is 2 megabytes.

Also in December, the article "AppleTalk Remote Access" (page 203) misstated the licensing conditions for buyers of the $199 stand-alone package. It should have explained that each licensee is entitled to make and use three copies of the software.

In the January '92 review of Ovation (page 56), the telephone number for Proxima was incorrect. The correct number is (619) 457-5500.

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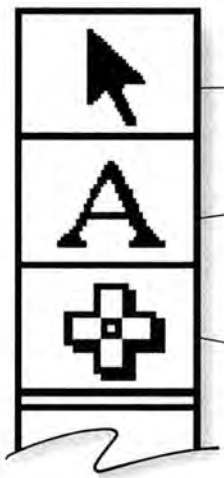
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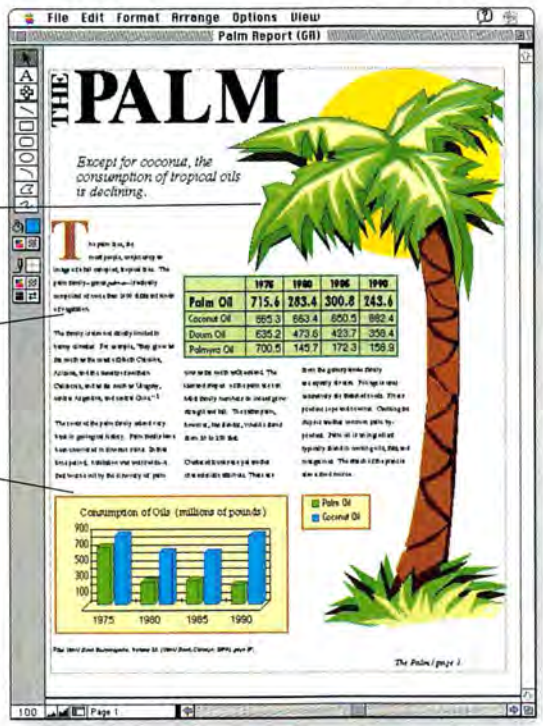


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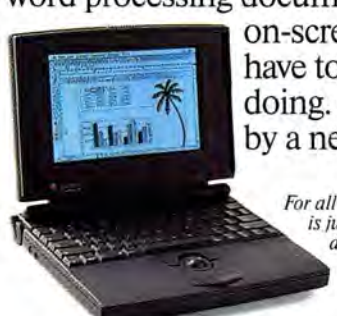


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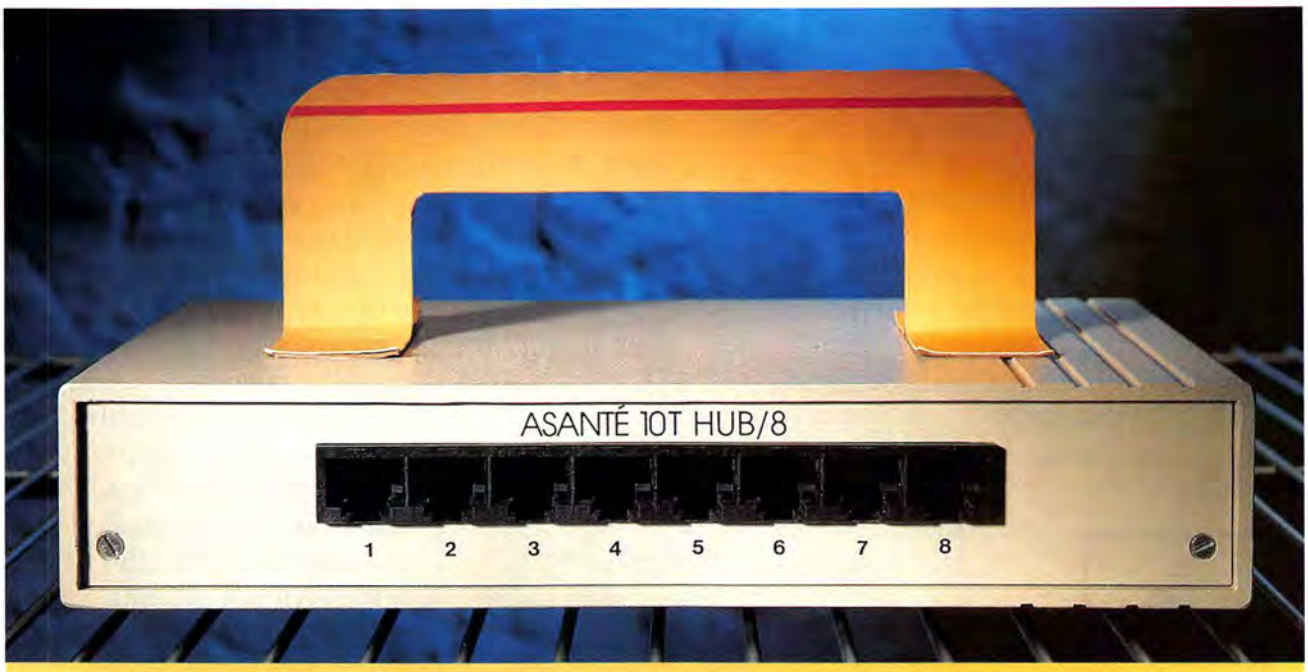


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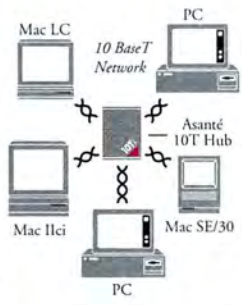
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JON ZILBER

The Agenda Gap



Collaborative multimedia enterprise computing, anyone? Some technological blockbusters will be hot tickets, but most will bomb at the box office.

Where's Bill Murray when you need him?

Remember how he used to run through his annual Oscar picks on "Saturday Night Live"? He'd start off with all these little titles for all the nominees on a magnetic board and matter-of-factly toss off a comment like "Woody Allen is just too New York for the Academy" as he flicked one movie title off his little tote board. "Foreign director" — flick, down goes another one; "The Academy hates Spielberg," flick, another one bites the dust; "Didn't see 'em," sweeping the remaining ones off the board. In the end, only one movie — something such as *Stripes*, *Ghostbusters*, or *Tootsie* — would be left in the running.

In Silicon Valley, the decision-making process about what's hot and what's not is never that simple. But there *are* a few well-established mechanisms — the keynote speech at the annual fall Comdex and corporate position papers and annual reports, for instance — for catapulting a technology or a would-be trend onto the agenda in the first place.

After reviewing the current crop of nominees for the industry's agenda, we'll apply the Bill Murray technique to see which topics remain on the hot list and which ones fall off the board.

•**Information at Your Fingertips** (Microsoft). What was Bill Gates talking about at the 1990 Comdex when he coined — or at least trademarked — this phrase? A handful of technologies that sounded an awful lot like Apple's System 7. But by couching his descriptions in the language of PCs, he managed to steal Apple's thunder. By the following year, Windows had become *the* platform to watch, overshadowing even DOS (in momentum if not in volume) and turning OS/2 into a punch line.

•**Enterprise systems** (Apple). Apple's 1991 annual report outlines the company's strategy to its shareholders as a three-phase operation: (1) gain market share (by introducing low-priced Mac models); (2) leverage that market share to command a major presence in the so-called enterprise-computing environment; and (3) exploit emerging technologies such as RISC, object-based systems, multimedia, and personal-information systems to fend off competition. Having accomplished phase 1 and not yet being prepared to discuss phase 3 in any detail, phase 2 — pursuing enterprise systems — is at the top of Apple's agenda.

•**Collaborative computing** (Intel, Lotus). Collaboration comes in many flavors, such as E-mail, groupware, and networking. As the 1991 Comdex keynoter, Intel president and CEO Andy Grove gave an address on computer-supported collaboration in which he compared the computer industry with the telephone industry. Your telephone is part of a single basically seamless network in which the underlying infrastructure is almost completely hidden from you. In contrast, your computer network is one of more than ten million separate and generally incompatible computer networks worldwide. Without centralized planning, the telephone network would have been just as bad: The number of switchboard operators required would have grown exponentially, so every man, woman, and child in the country would have ended up working for the phone company.

Intel, as the dominant manufacturer of the chips inside IBM-compatible PCs, hopes that a big part of the solution lies in board-level innovations. Lotus, on the other hand, believes that the way to get computers talking is with powerful application software such as Lotus Notes. In a series of white papers (called "The Lotus Position," natch) issued last year, the company cites computer pioneer Rear Admiral Grace Hopper, USN, Ret., as noting that "before going about gathering information, people must determine what kind of information is valuable for any given project or situation." That's why we need collaborative computing — because no individual user should be forced to decide which data other users might need.

•**Object-based systems** (Borland). Borland's Philippe Kahn is trying to make *object-oriented programming* a household word. Object-based programming — a genre of software programming — means little to users, although it could change the kinds of software that make the most economic sense for developers to offer. Meanwhile, virtually all the other major developers of software — both application and system software (including the Apple/IBM Taligent joint venture) — claim to have more objects than thou.

There are a few more perennial items to add to the agenda:

•**Pen-based computers and pen-based operating systems.**

•**Multimedia.**

•**The transformation of computers into low-cost consumer-electronics products.**

Those are the major nominees for the agenda. Now, with the spirit of Bill Murray to guide us,

let's knock the also-rans off the agenda so we can figure out who's really setting the agenda and what topics come out on top.

Bill Gates, for Information at Your Fingertips? Naaaah. Gates is the Steven Spielberg of the industry. The Academy respects him as the industry's undisputed best salesman, but nobody wants to give him the prize.

Andy Grove, for his computer-supported collaboration at Comdex? Didn't see it. Besides, just what the heck is it that we're going to *do* collaboratively? More often than not, the collaborative part of a job is the necessary evil: coordinating schedules, arguing, and compromising. The creative work — particularly the creative work involving your computer — is generally a solo effort.

Philippe Kahn's "My objects are bigger than your objects"? Forget it; the Academy ignores foreign directors. We're not talking about Philippe's nationality here; we're talking about a man whose willingness to take risks (such as acquiring Ashton-Tate and pricing software aggressively) has scared off too many people for his vision to be widely embraced.

Pen-based systems? A niche market at best. Pen computers will not replace desktops and laptops. They'll replace clipboards. The challenge for purveyors of pen systems is not as simple as getting customers to abandon their perfectly good $5,000 investment in Mac (or DOS, or Windows) gear in favor of an untried and untested but compelling $10,000 pen-based system. The challenge of pen computers is getting customers to upgrade from a $1.98 clipboard to a $10,000 computer. And you can't squeeze blood out of a stone, even if the stone is ready, willing, and salivating at this nifty new gizmo.

Multimedia? Give me a break. Apple's QuickTime is pretty neat, but nobody's even figured out how to actually use sound productively, and it's been built in to the Mac for over a year now. (If you have, I'd like to hear from you.)

Consumer electronics? The consumer-electronics market is not about technology; it's about making a fashion statement that will turn your gadget into a must-have fad or picking next summer's top hit movie while it's still in production the previous winter so you can arrange a product placement in the film and be part of the McDonald's Happy Meal tie-in. Until computer makers start thinking this way, the consumer market will remain a fantasy.

And the Winner Is . . .

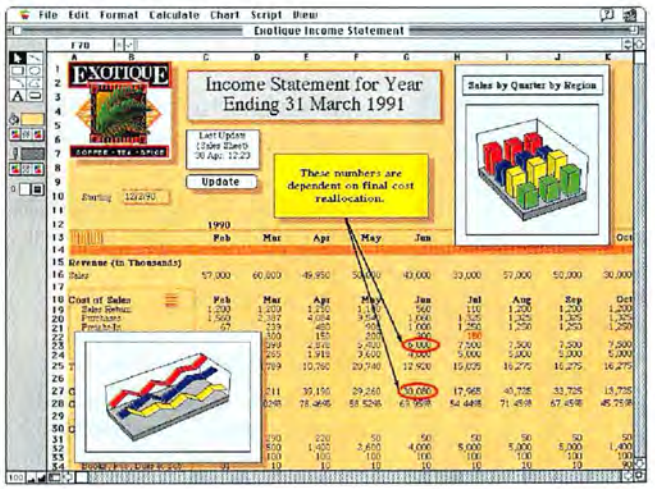
That leaves Apple and enterprise systems as the hot topic of the hour: client/server hardware and software; A/UX; and networking with the established alphabet soup of connectivity standards such as VAX/VWS, Banyan VINES, and IBM's AIX/6000. Kinda boring, kinda the same, kinda UNIXy. But that's where the action is gonna be.

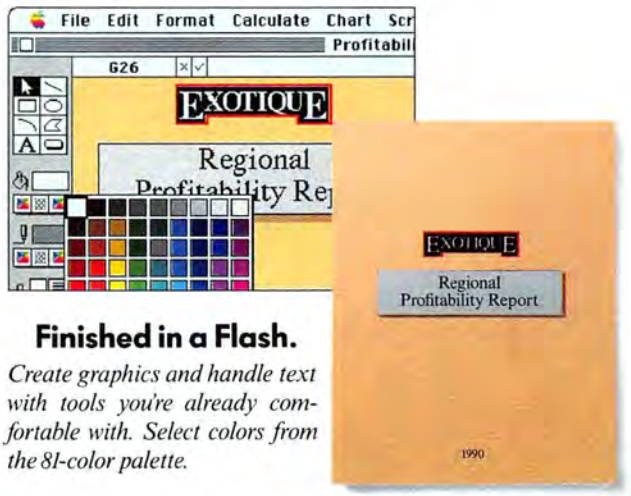
Or my name isn't Bill Murray.



CIRCLE 84 ON READER SERVICE CARD.

The only thing missing from our new spreadsheet is the learning curve.



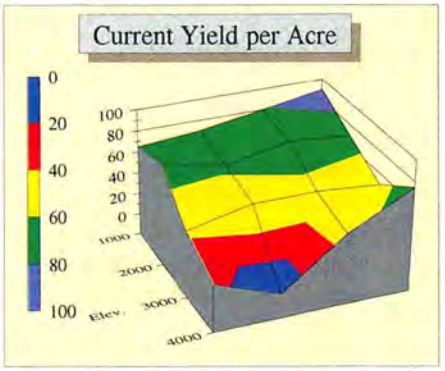


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FIFTH GENERATION SYSTEMS, INC

CIRCLE 102 ON READER SERVICE CARD.

GUY KAWASAKI

Help!



Great tech support can be just a phone call away, once you know the secret Kawasaki formula for getting answers instead of runarounds.

The most common kind of electronic-mail message I receive is about how hard it is to get good technical support from Macintosh hardware and software companies. The messages are from two types of people: first, the exasperated souls who have already tried talking to the companies to no avail and think that I'm a technical guru who knows all the answers, and second, the aggravated souls who think that I'm going to intercede on their behalf and call the president of the company to get a remedy. (If this fails, I'm expected to write a nasty column about the company and humiliate the jerks forever.) I've got news for both types: I'm neither a technical guru nor a gun for hire.

When I get one of these messages, my dark side is tempted to respond by saying, "Why are you bugging me? This isn't my problem. Fight your own battle. I left ACIUS two years ago. Bill Gates doesn't listen to me. Fred Ebrahimi couldn't care less who I am. I haven't talked to Paul Brainerd in years. If I see John Warnock, I'm going to ask him for some fonts for myself — not help you."

But I don't. I'm a wimp. I'm afraid to. My light side refuses to abdicate control. I have nightmares that someone will read my response aloud at a user-group meeting or print it in a newsletter. Or someone will burn his copy of *The Macintosh Way* on CNN. (If you're going to burn one of my books on national television, please, for publicity's sake, burn *Selling the Dream*.)

This column explains how to get good technical support. When it is published, my light side may let my dark side answer my E-mail. Or my light side may simply refer you to this column in a one-line response that's stored in a Thunder 7 glossary, making a response accessible by the press of one function key.

Before You Call

Send In the Registration Card. On a bozo scale of 1 to 10, not sending in the registration card is a 9. The first thing most companies do when you ask for technical support is look you up in their database of registered customers. If you're not there, you're starting off on the wrong foot, because the support person is thinking, "Is this a pirate or not?"

Registering lets you take the moral high ground. If a company doesn't send you notices of upgrades or new versions, it's not your fault. It's their fault. Also, it's considered hip these days for a company to send direct mail to its installed base. By registering, you're going to get junk mail, but some junk mail contains great bargains.

Try the Simple Things First. Getting technical support, even from the best companies, is a pain in the bus. As much as possible, avoid resorting to it by trying the simple things before you call. Rebuild your desktop by restarting your Macintosh while holding down the Option and Command keys. Reinstall the software from the original disks you bought, because applications and their adjunct files can get corrupted. You might as well try these things before you call, because the support person is going to ask you to do them anyway.

Know What You've Got. If the simple things don't work, make sure you know what you have in your system *before* you call. Start by finding out what version of the software you're using. To do this, choose the About command from the Apple menu. This provides a dialog box with version information.

Also, know what kinds of INITs and control panels you're running, because a favorite cop-out for companies is to blame the vagaries of INIT and control-panel conflicts. This is a manifestation of bozo support: "Avoid solving customers' problems; make them think they did something wrong, and send them off to look for their own solution."

The way to dodge this is to know in advance what's in your system. You can do so by running a program such as Profiler (part of Now Software's Now Utilities) or the freeware program TattleTale, which has similar abilities. (You can get TattleTale from ZiffNet/Mac [Zmac], filename TATTLE.SEA). These products provide a report of what's running in your system.

Then when a support person says, "This sounds like an INIT (or control-panel) conflict," you say, "What INITs (or control panels) cause this? I know exactly what I have in my system." You are permitted to think, "Make my day, bozo."

See If You Can Duplicate the Problem. The most frustrating problems for both users and support people are problems that can't be repeated. Before you call, try to make the problem repeat itself. Record exactly what you've done. This provides useful clues to help support people figure out what's gone wrong. If you can't duplicate a problem, go to the next paragraph.

Get a Life. Many people who call for technical support are victims of self-inflicted abuse:

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CIRCLE 90 ON READER SERVICE CARD.

"When I'm in Excel with Talking Moose turned on but not talking, right after After Dark has launched the flying-toaster screen saver if I hold down the Tab, Shift, Option, and Delete keys and launch About Excel with my Radius Pivot in landscape mode, I crash. Is there a fix for this?"

There is a fix: Don't do it. To paraphrase Goodman Ace, if it hurts when you do something, don't do it. Sometimes support people are justified in telling callers, "This sounds like an INIT conflict."

When You Call

Be Sly. A trick to getting through to a company's technical-support people is to figure out their biorhythms. Some people like to start early and get a jump on the day. Some like to work late, because they don't have lives. Some like to work during lunch, because customers don't call during lunch, because they think that the support people are out. Experiment until you figure out the best time to call.

Always Make Progress. Some people take lithium before they call companies with voice mail and message-taking devices. They're wrong. These tools can help you get support if you remember one thing: Always make progress. Don't leave a message like "This is Steve Jobs. I have a problem. Call me back at (408) 555-1010."

Instead, leave a message like this: "This is Steve Jobs. I am using version 4.01 of WordMaker, running under System 7.0.1 on my IIci with 8 megabytes of RAM at 16 shades of gray. I crash when I try to add more columns to an existing table. Please call me back at (408) 555-1010 until 6:00 P.M. PST. From 6:00 to 6:30, I'll be in my car; the car phone number is (408) 555-2227. After 6:30, I'll be home at (408) 555-2393."

Be Succinct. On the other hand, don't be verbose. Provide the pertinent information for solving your problem. Don't waste time with an essay about why tech support should help you because "I bought my first copy of your software when it was running on an Apple II. Since then, I've bought two more copies. I tell my friends to buy it. Once I was at a user-group meeting, and a salesman from your company did a demo. I think his name was Biff, or maybe Jonathan. I thought his demo was lousy."

Develop a Close Relationship. The voice at the other end of the line is a person. Another human being who has hopes, aspirations, dreams, desires, and frustrations. Rather than treating that person as your butler, concierge, or slave, foster a relationship. Latch onto one person, and write down his or her name and extension so that you get person-to-person support instead of a party line.

Here are the best ways: Write to the person's supervisor and say what a great job the person is doing, send a gift, or send a sample of your company's products. Over the course of several years, grateful customers have sent me books, Danish pastries, steaks, pork chops, T-shirts, footballs, and one of every computer product that 3M ever made. My favorite gift of all time, though — what with my being a wife and all — was a box of Dow Chemical household products.

If All Else Fails

If none of these techniques yields satisfactory support, then my suggestion is that you contact the president of the company. This is an art in itself.

Send a Fax. Faxes are hip. In the evolution of business correspondence, first people sent letters to get attention, then they made telephone calls, then they sent letters via Federal Express. Now they send faxes. There's something about a fax that makes it seem urgent.

Start Your Fax on a Positive Note. Honey, sugar, even NutraSweet works better than vinegar. Start your fax with a sentence like this: "I enjoy using your product. It is among my favorite applications. Frankly, I consider it a justification for buying a Macintosh."

State Your Problem Succinctly. Don't send a fax that is longer than one page (two, counting the cover page). State your problem, and ask for resolution. Nobody wants to hear your entire woeful plight.

Don't (Try to) Get an Employee in Trouble. There's a high probability that the person you try to skewer will be the one who is assigned to help you. Describe everyone's effort, regardless of what happened, like this: "Jane has been extremely helpful and professional, but we still haven't completely resolved the problem."

If writing to the president fails, then it's time to vote with your feet and your dollars. Some companies and customers just weren't meant to build a relationship with each other. That's OK — just move on. And if you find that you have a compelling need to write to a columnist about your experience, I suggest Deborah Branscum at *Macworld*. Leave me alone.

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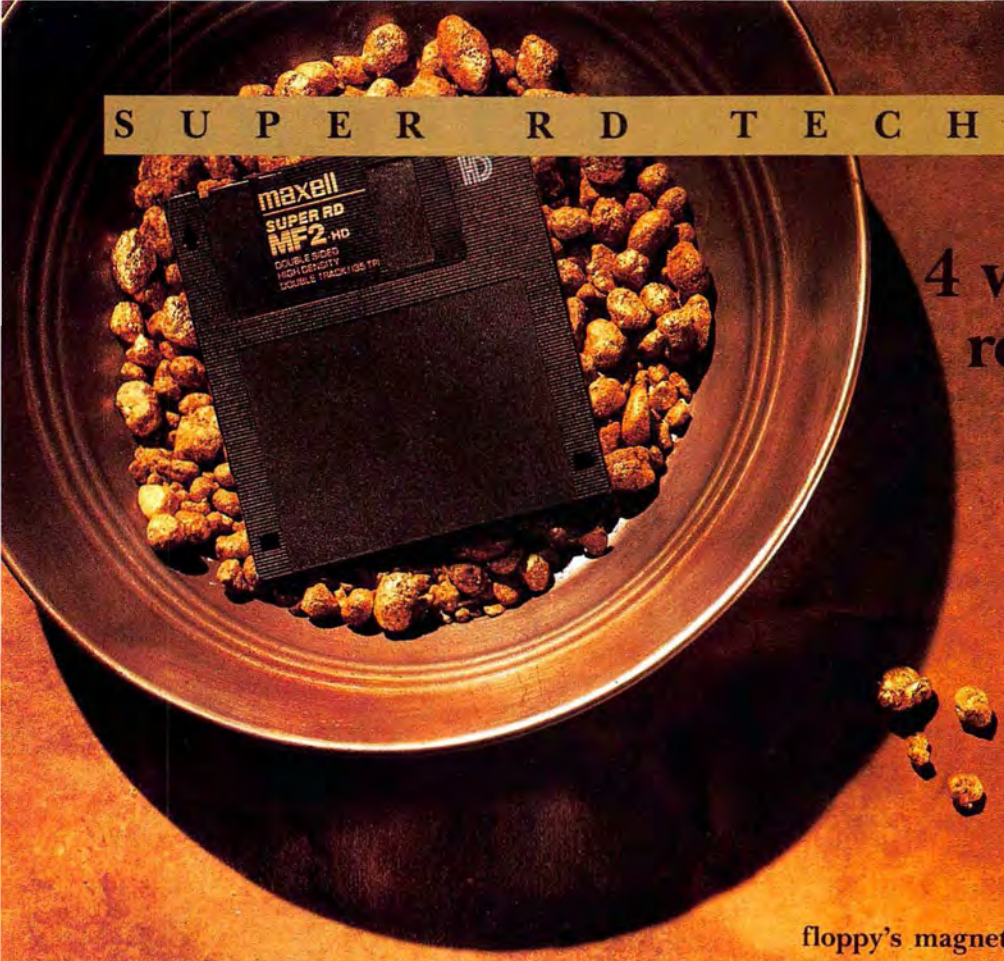
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CIRCLE 114 ON READER SERVICE CARD.

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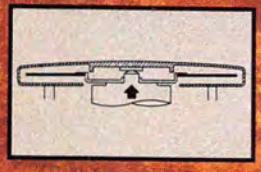
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CIRCLE 80 ON READER SERVICE CARD.

MICHAEL SWAINE

The Mouse That Bored



Warning: Using a Mac can make both you and your work a lot more boring. Isn't that interesting?

Let's take as our inspiration this month an observation by journalist Christopher Hanson that appeared in the November/December 1991 issue of the *Columbia Journalism Review:*

"Seen in the proper light, boring material can actually be quite interesting."

I admire the courage of this sentence. Brazenly admitting that its subject is boring material, it parades it before us in the drabbest of diction (the colorless "actually," the fussy "quite," the tiresome "interesting"). And yet, boring as the sentence is, it interests us.

All right, it interests *me.*

Here's why: Hanson's thesis is that boring subjects can be a nice break from the routine barrage of hyped-up news flashes. Well, there's certainly no lack of hyped-up news flashes in our little Macintosh universe. So maybe it's worth asking what the boring subjects are.

Paradoxically, some of the most hyped-up technologies are also potentially the most boring: sound input, content analyzers (such as spelling and grammar checkers), sophisticated desktop mathematics software, and video. All hot stuff and all but guaranteed to increase your workload, add to your drudgery, and compound your coefficient of boredom.

What gets the hype, naturally, is what the hardware and software can do for us. There's always another new product or platform or paradigm that empowers the individual. (Granted, in the new corporate communism of the '90s, it is the "workgroup" or the "enterprise" or some such bloodless abstraction that gets empowered, but that's just semantic smoke.) There's always something new, and that's, well, interesting.

What's boring is what *you* do.

The Clause that Depresses

Somehow, for all their spiff and savvy, these tools remain tools and we workers remain responsible for our work. Stuff remains for us to do, and it's the same old stuff, boring and bland, familiar and forgettable. We get the dregs, what computers can't do.

Just a moment while I retract my claws. Although I guess "what computers can't do" is a phrase rather than a clause. But phrase or clause, I disown it and cut it off without a cent. History proves that Man is but a patched fool if he will offer to say what computers can't do. The subject of this month's column is, rather, what Man would be a fool to think that computers will do for him.

Talk Is Cheap

A lot has been said in the computer press about sound. Maybe you've heard: Sound is where it's at. There's talk of applications adding sound, and documents, we're told, just won't have that ring of truth without voice annotation.

Unfortunately, there is a catch to voice annotation that some proponents seem not to have noticed. Voice annotation is recorded speech.

In conversation, the listener has to grab the gist on the fly, making it nigh impossible to engage in any rhetorical criticism at the same time. We can listen to the content or to the style but not to both at once — or at least not well. This bandwidth limitation spares the average speaker a lot of embarrassment.

Recorded speech spares us nothing. Without rehearsal, even professional speakers can sound dull and dumb. Take, for example, professional talker Geraldo Rivera, whom Christopher Hanson quotes: "I was a cheater. I was a cheater What a cheater does is to cheat. A cheater cheats."

And so on, ad nauseam. Hanson reproduces more of this redundant confession, but his point is that it is possible for someone to be newsworthy just for being a crashing bore. Mine is that raw, unrehearsed speech is often pretty embarrassing.

Because we don't want to be embarrassed or to be left behind in the noisy advance of progress, we'll adapt. We learned to talk to answering machines, and we'll learn to talk to documents. But we'll have to do the learning on our own. Computers won't do our talking for us.

Can You Spell Checkers?

Nor will they do our spelling for us or hide our bad grammar. Spelling checkers and grammar checkers have their uses, although one seems to hear of more cases of their misuse than of their proper use. Used correctly, these products should *increase* your work load, because the only legitimate uses for them are (1) as an extra check before the final human proofing and (2) for self-education in spelling and grammar.

To fully check the spelling of words in a document requires knowing what words were intended. To fully check the grammar requires knowing the intended sense of the document. Spell-checking and grammar-checking programs, unfortunately or fortunately, don't know anything about authors' intentions. So they

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CIRCLE 67 ON READER SERVICE CARD.

routinely miss egregious errors. A lot of people seem to use these products as though the software could actually do the complete job of finding errors in spelling or grammar. They can't, and executives who think that there is an apostrophe in the possessive of *it* and who rely solely on a spell-checking program for proofing will be exposed for the illiterates they are.

Learning our native language is just one more of those boring things we still have to do for ourselves — or hire people to do for us.

That Old Math Magic

The advent of the pocket calculator got a lot of people concerned that children would stop learning to do arithmetic. Then personal computers came along, and they were sure of it. I don't know what the statistics on this are, but this much is clear: There's no reason why calculators or computers *should* interfere with acquiring math skills, because they actually *require* math ability for their competent use.

To use a calculator or a mathematically oriented program such as a spreadsheet program properly, you need to understand something about the math they're doing. The mathematical sophistication required to read a number displayed in scientific notation is not trivial.

The square root your calculator gives you may lead you astray if you don't know that there are positive as well as negative square roots. And unless you can really trust your typing skills, you need to apply some sort of mental plausibility check on *all* calculator results, and this requires a level of mathematical understanding that the calculator can't supply.

Even very simple spreadsheet operations require some knowledge of what you're doing. Is it meaningful to compute the average of salaries in a spreadsheet? Maybe, but you should know that in spreadsheet programs, "average" universally means the arithmetic mean, which — for this kind of data — is likely to give a heavy weighting to bosses' salaries compared with those of employees, resulting in an "average" that is higher than what almost everyone makes. The median salary may be more representative, but it all depends on what you're trying to find out or show.

And even when the arithmetic mean is the right statistic, what do you do if some values are missing? The answer is usually obvious: Leave them out entirely, substitute zeros for them, or substitute some other value. But the spreadsheet can't tell you the appropriate way to treat those missing values.

Before you can use mathematical software, you've got to know some math.

Just as soon as we get comfortable with talking to our memos, we'll have to start producing little videos to attach to them. And that will mean more work for us humans.

The Big Picture

Similarly, to use graphical software, you need to have some knowledge about the purposes and techniques of graphical communication.

Graphical software can take most of the effort out of producing a graph. But the only reason for producing a graph is that you expect to be able to communicate information more clearly with the graph than you could with a prose summary or a table of numbers. And you have to know something about graphs to communicate with them. A reader sent me a collection of graphs culled from computer publications that (1) compare things that can't be compared, (2) include reciprocal data (knowledge and lack of knowledge about a subject graphed together as though they weren't different measures of the same thing), and (3) can't be understood without your reading the captions.

I won't even mention the range of skills needed to produce a decent press release or company newsletter. In order to design, one must have design sense. Anyone else should stay away from this area.

And just as soon as we get comfortable with talking to our memos, we'll have to start producing little videos to attach to them. Or something. It's not clear just how video is going to invade our work, only that it will. And that will mean more work for us humans, because although nobody is going to expect professional videos from us, inflicting a video on someone does impose some responsibility on the inflicter. Confronted with a dry memo, the reader can skip over the dull parts. Confront your audience with a dry video, and you'll bore it to tears.

And who wants to be boring?

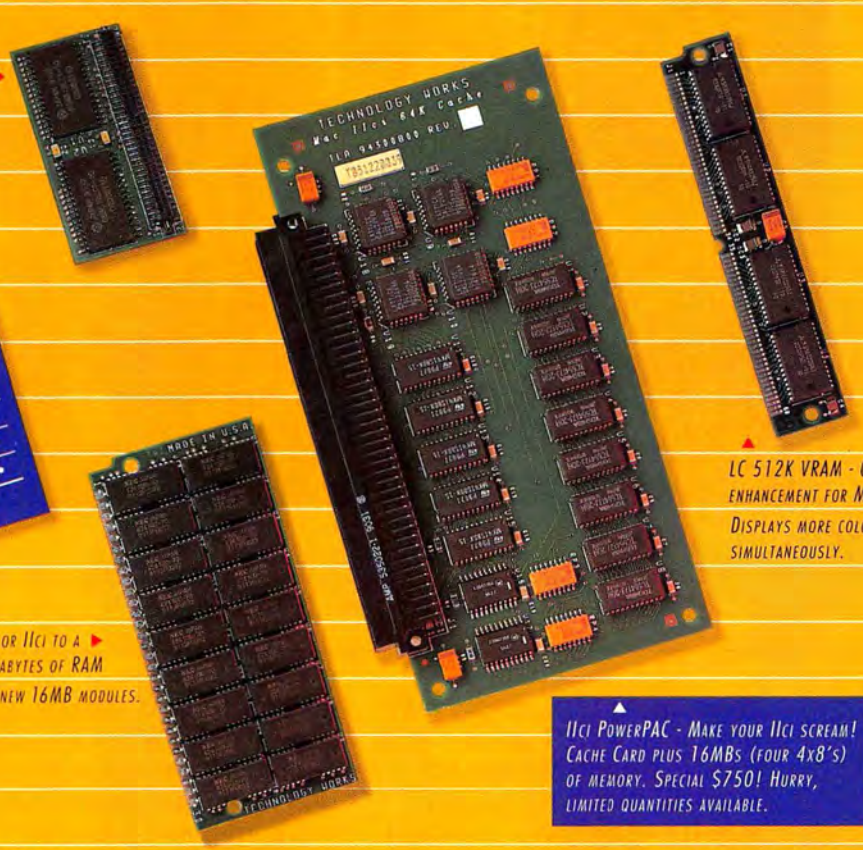
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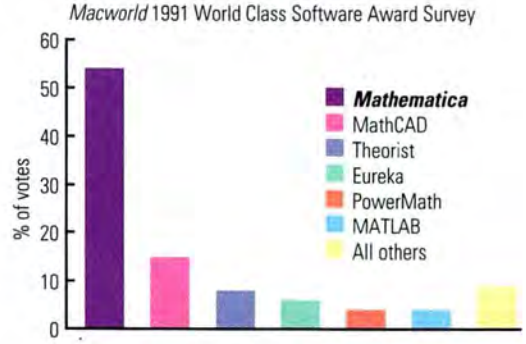
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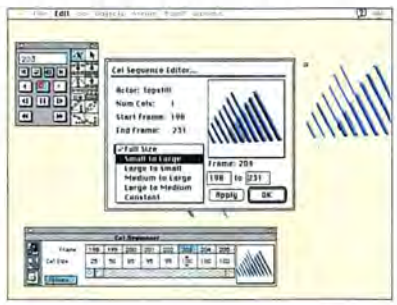
NEW ON THE MENU

The gyromouse: Imagine a mouse you could use just by waving your hand in space. We're not sure what you'd do with it, but that's what the GyroPoint, from Gyration ([408] 255-3016), is. Instead of a ball, the GyroPoint uses a pair of tiny gyroscopes to track cursor position, so you can move it freely in any direction — well, almost freely. Developer kits are priced at $1,000, and the company expects commercial units to cost $500 each.

By Russell Ito



Moving presentations: Getting an audience's attention isn't hard — keeping it is. But just as the audience for computer-based presentations was nodding off, several easy-to-use animated-presentation packages have emerged. Cinemation ($495), from Vividus ([415] 494-2111), is a well-designed and -implemented package that lets you create interactive animated presentations from scratch or from PowerPoint and Persuasion slide shows. Cinemation uses a simple path-based approach, so animating an object is as simple as selecting and dragging it. You can easily link animations, embed one animation in another, and incorporate digital sound and video. Creating interactive presentations is easy, because all you use is a dialog box. Cinemation includes a 24-bit-color painting environment, a license-free player for playing back presentations, an XCMD for HyperCard, 12 megabytes of business-related clip animation, and the unique ability to animate PowerPoint and Persuasion presentations. Opening a PowerPoint or Persuasion presentation in Cinemation turns each slide's text into a fully editable text object, so you can animate it or add effects.



PROmotion ($295), the successor to ADDmotion, from Motion Works ([604] 685-9975), is another path-based animation package targeted at presenters. Although its approach is more animation-oriented, it also lets you create animated presentations by simply dragging objects around. You can add interactivity through a dialog box. PROmotion is System 7-savvy and includes support for Apple events and UserLand's Frontier scripts. The package also includes a 24-bit-color painting environment plus support for as many as 16 simultaneous sounds. With QuickTime and this new generation of animation packages, conventional presentations may not be enough to get an audience's attention anymore.

Up to Date . . .

Hewlett-Packard, of Cupertino, California, has added EtherTalk to its 17-ppm PostScript LaserJet IIISi. The EtherTalk IIISi comes equipped with 5 megabytes of RAM and 35 Adobe fonts. (800) 752-0900. $6,995. Prograph, TGS Systems' graphical programming environment, has been upgraded to version 2.5. New features include a new database engine and support for Apple events. (902) 455-4446. $495. DynaPerspective, Dynaware's 3-D-modeling program, has been upgraded to version 2.3. It includes support for RenderMan's RIB format, 24-bit animation, virtual memory, and 32-bit addressing under System 7.



Apple's Macintosh 16-inch Color Display brings the clarity and brightness of Apple's 13-inch monitor to a midsize format. The 16-inch monitor also includes audio in and out ports and pass-through ADB ports in its tilt/swivel base.

Apple's Midsize Monitor

For users who find Apple's 12- and 13-inch RGB monitors too small and the 21-inch display too big, Apple may have the perfect solution: the Macintosh 16-inch Color Display.

This new Apple display uses a Sony Trinitron tube, so its sharpness, clarity, and brightness are virtually identical to those of Apple's standard 13-inch model. It can also operate in 24-bit mode, using the internal video capability in the Quadra. In most other respects, however, the new display owes more to Apple's top-of-the-line, 21-inch monitor. Like the 21-inch model, the 16-incher features an antiglare, antistatic screen and a 75-hertz refresh rate. It meets the Swedish standards for low-frequency magnetic emissions. The 16-inch monitor features an integrated tilt/swivel base that's more than just a base.

Like the 21-inch model, the 16-inch unit has three ADB ports, so you can connect it to a floor-standing Mac. In addition, however, the 16-inch monitor includes headphone output and microphone input jacks on the front of the base, with corresponding input/output jacks at the rear for connection to the Mac. In case you haven't counted, there are seven ports in the base.

Apple Computer, Inc., 20525 Mariani Blvd., Cupertino, CA 95014; (408) 996-1010. $1,499.

Hot Dates

Computers are great for keeping track of a wide range of things, but your schedule isn't one of them. So far, scheduling packages have focused on either a single user or a group of users, but not both. As a result, your schedule has resided either locally, so you couldn't share it, or on a server, so it could be shared but you couldn't look at it if you weren't connected to the server. Fortunately, Now Software has come up with a solution to both problems: Now Up-to-Date.

Now Up-to-Date is a scheduling package that lets you keep personal as well as shared calendars. Your personal calendar resides locally, and your shared calendars are stored on a server. The personal and public calendars (you can subscribe to several public calendars at the same time) exchange information automatically, so your local calendar is always current. This gives you the flexibility to disconnect from the server and continue working on your schedule away from your desk; when you reconnect to the network, your calendar will be automatically updated.

Unlike that of most other scheduling packages, Now Up-to-Date's interface looks like a traditional calendar. You can choose to view a month, week, or day at a time. Double-clicking on a day in the Month view, for example, pulls up a detailed view of that day. Recurring events can be scheduled, and you can also set alarms. Now Up-to-Date also includes floating Post-it notes plus banner notices you can stretch over several days to indicate non-time-specific events. Calendar styles can be customized, and you can even set up custom views that show only specific types of appointments.

Now Up-to-Date also prints in a variety of day-timer formats, without requiring expensive custom paper (this does force you to do some additional work, such as punching holes).

Now Software, Inc. 520 S.W. Harrison Street, Suite 435, Portland, OR 97209; (503) 274-2800. $99; five users, $399; ten users, $599.

Ofoto Stands Alone

If you've been kicking yourself for buying a scanner other than Apple's new OneScanner, because you missed out on the OneScanner's great software, you can stop punishing yourself. Light Source, the developer of Ofoto, has begun selling the package as a stand-alone application.

The revised version of Ofoto, version 1.1, includes support for scanners from Abaton, AVR, Epson, Hewlett-Packard, La Cie, Microtek, and Panasonic as well as continued support for the OneScanner and the original Apple Scanner. Ofoto now supports QuickTime, so it can write and open files in QuickTime's compressed PICT format. Auto-Sharpening has been



Now Up-to-Date solves the problem of coordinating personal and group schedules. With Now Up-to-Date you can take your schedule with you and automatically update it when you return.

added to Ofoto's Auto-Scan function, making the scanning process even more automatic. And because of improvements that let you scan at a lower dpi, the new Ofoto's files are as much as 50 percent smaller than those produced by the previous version while maintaining the same image quality.

Version 1.1 of Ofoto will ship with the OneScanner and also be sold as a standalone package. Current OneScanner owners can upgrade to version 1.1 through Apple.

Light Source, 17 E. Sir Francis Drake Blvd., Larkspur, CA 94939; (800) 231-7226 or (415) 461-8000. $395.

Radius' Latest MultiSync

Time was that *multisync* was a dirty term in the Mac community, primarily because it was usually a euphemism for an inexpensive bad PC monitor that would work with a Mac — sort of. But just as no one ever thought that Apple and IBM would cozy up to one another, multisyncs and the Mac are coming together: Witness the recent release of the NEC FG series and Radius' PrecisionColor Display/20, probably the most advanced monitor available. Now Radius has followed the Display/20 with the PrecisionColor Display/19, a 19-inch model that offers most of the Display/20's performance but without its microprocessor intelligence. It's a bargain at $2,499.

The Display/19 supports a variety of resolutions, from 640 x 480 to 1,024 x 768 pixels, and when used with a Radius interface card, it lets users switch resolutions on the fly without rebooting.

Like the Display/20, the Display/19 has numerous ergonomic features, including an integrated tilt/swivel base, an antiglare tube, and front-panel controls for contrast, brightness, and image geometry.



Radius' PrecisionColor Display/19 multisync monitor offers the plug-and-play convenience of Radius' high-end PrecisionColor Display/20, but at a bargain price.

Radius, Inc., 1710 Fortune Drive, San Jose, CA 95131; (408) 434-1010. $2,499.

Apple's New Year's Upgrades

Apple topped itself with its major product announcements last October, but since then it's been busy preparing some minor upgrades.

Apple's printer line has been given a couple of tweaks. The Personal LaserWriter LS ($1,299) has added seven more TrueType font families — ITC Avant Garde, ITC Bookman, New Century Schoolbook, Helvetica Narrow, Palatino, ITC Zapf Chancery, and ITC Zapf Dingbats — for a total of 39 fonts. The software installer has been improved, so installing the fonts, driver, and printer software is a one-button operation. The new software of the StyleWriter ($599) makes it print up to twice as fast as before, and it also has added the same seven fonts that are listed above.

The Macintosh 8•24 GC video-interface card has been revamped in hardware, software, and price — it's improved and $500 less expensive than before. The new GC software is compatible with System 7 and QuickTime. The new card and software let users drive Apple's 16-inch monitor at a maximum of 16 bits (32,000 colors) but not at 24 bits (16.7 million colors). (Owners of the earlier GC, however, can't drive the 16-inch monitor.) The new GC card lists for $1,499.

Finally, Apple's standard keyboard is now the same as the keyboard that's been shipping with the Classic. The Apple Keyboard II lists for $129.

Most of Apple's software upgrades (including the Ofoto upgrade) will be available through Apple's usual distribution channels, including user groups, bulletin-board services, and dealers. The printer software, however, is another story. Because of contractual agreements surrounding the bundled fonts, only Apple and its resellers can distribute the software. Apple will offer a toll-free number you can call to order an upgrade (the call is free, but you have to pay for shipping and handling). The number wasn't available at press time; call Apple's number below to get it.

Apple Computer, Inc., 20525 Mariani Blvd., Cupertino, CA 95014; (408) 996-1010.

NewsLine

Reports and Analysis

IBM Splits Up

ARMONK, NEW YORK — Just as the USSR was dissolving into independent republics, another monolith, IBM, decided to do the same. In a sweeping reorganization, IBM announced that it would restructure its business operations to include a group of independent companies that would each be responsible for setting and meeting profit targets and for seeking out new customers — customers other than IBM. The six new independent businesses are: Pennant Systems, for printers; Storage Products, for disk-, tape-, and optical-storage products; Personal Systems, for desktop computers; Applications Business Systems, for the midrange AS/400 line of computers; Technology Products, for semiconductors; and Employment Services, for recruiting and training. IBM's manufacturing companies will now supply customers other than IBM, so Storage Products, for example, will now compete directly with other third-party storage manufacturers for a share of the OEM business. In connection with the restructuring, IBM also announced that it would lay off 20,000 employees in 1992 — in addition to the 20,000 workers it laid off in 1991. Even with the two rounds of layoffs (equaling nearly three times the total number of Apple employees), IBM still employs an estimated 333,000 people. As a result of the layoffs and other economizing measures, IBM is expected to take a $3 billion charge against its 1992 earnings, which analysts predict will give IBM a loss for the year overall.

Philips Backs Hyatt

NEW YORK, NY — Philips Electronics, of the Netherlands, has thrown its considerable weight behind little-known inventor Gilbert Hyatt, who was granted a patent on a single-chip microprocessor design in 1990. Hyatt had pursued a patent on his work for years, claiming that his work predated that of Texas Instruments, which was granted the first microprocessor patent. Because Hyatt's patent covers a technology that is at the heart of the personal-computer industry, he can seek licensing fees from nearly every personal-computer manufacturer. Philips has licensed a pair of Hyatt's patents and announced that it plans to help Hyatt extract royalties from other electronics firms.

SPREADSHEETS

Lotus 1-2-3 for Macintosh

With its superbly crafted interface and unique power features, Lotus 1-2-3 for Macintosh is a strong new contender in the Mac spreadsheet-program arena.

As Lotus jockeys for position in the heated Mac spreadsheet market, one thing is abundantly clear about its new Lotus 1-2-3 for Macintosh. This time around, Lotus has got the Mac interface down. Not only is 1-2-3 for Macintosh a joy to operate but it also offers unprecedented flexibility for tweaking its interface to meet specific needs. Its DataLens technology and 3-D worksheets further boost 1-2-3's appeal for power business users. Developers, however, will find a more robust development environment in Microsoft Excel 3.0.

Interface Options

Lotus 1-2-3 for Macintosh gives you more control over your working environment than does any other Mac spreadsheet program. You can open, close, and move virtually every interface element, including the console and status bars. The console bar provides an editing region and a pop-up menu for selecting @ functions (built-in formulas that perform calculations) and defining ranges. The status bar displays feedback on the 1-2-3 work environment. The Draw and Style tear-off menus provide easy access to tools for formatting worksheets and for adding graphic elements and buttons.

In addition to customizing the desktop, you can modify the program's menus to incorporate frequently used formats, styles, and macros. Once you've done so, you can activate them with a mouse click. To simplify complex printing operations, 1-2-3 lets you name specific settings in the Print Options dialog box. Another nice interface touch helps you avoid the tedious task of memorizing keyboard command equivalents: The program displays keyboard shortcuts for dialog-box actions when you hold down the Command key.

One of the most distinctive features of the 1-2-3 interface is that you can perform in-cell editing of values and formulas, a feature that neither Excel 3.0 nor Claris' Resolve offers. If you double-click on a cell, you can edit the contents in place rather than going to the console's editing area. That's good news for Mac Classic and PowerBook users, because they can edit worksheets without devoting precious screen space to the console. When you double-click on a cell, Lotus' implementation of in-cell editing allows cells to expand as you're editing the contents, so you can see the entire values and formulas.

Another of 1-2-3's pluses is its charting ability. In stark contrast to Excel 3.0's clumsy implementation, 1-2-3's makes charting a breeze by giving you precise control over range selections for charts. If you want to edit a chart in Excel, you must open a window that's separate from your worksheet, which makes it difficult to maintain perspective. By contrast, 1-2-3's charts reside directly on top of the worksheets.

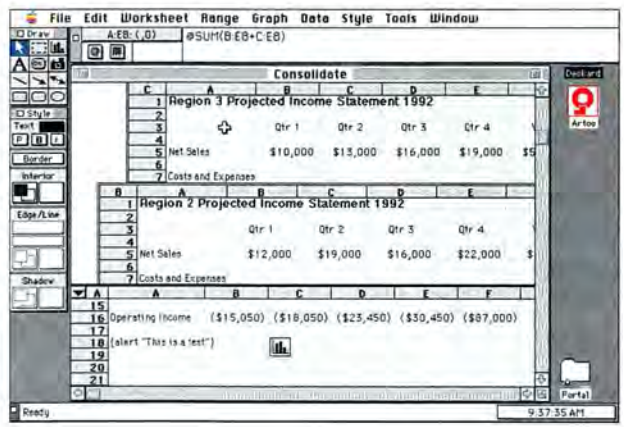
In addition, you can directly manipulate all chart objects simply by clicking and dragging. To conserve screen real estate and speed screen redraw, you can shrink charts to small icons on worksheets; double-clicking on the icons restores them to their original size.

Lotus 1-2-3 also improves on Excel's two-step Copy and Paste Special commands for converting cell formulas to values. Its Convert to Value command is a one-step operation. Moreover, unlike Excel operations, 1-2-3's don't trash the contents of the Clipboard, which makes repeated paste operations possible. That's because 1-2-3 uses the Clipboard properly — you don't see any "marching ants."

Casual users will have no trouble gaining access to 1-2-3's standard spreadsheet functions, and power users will also find plenty to sink their teeth into. The program features a unique 3-D-worksheet function that lets you incorporate multiple worksheets into a single document. Working with three axes — rows, columns, and worksheets — you can create sophisticated models for consolidating and analyzing data. A pop-up menu provides easy navigation among worksheets, and an optional perspective view lets you display several layers of multisheet documents if you have a large-screen monitor.

A major advantage of 1-2-3 for corporate computing is Lotus' DataLens technology. With DataLens and Apple's DAL (Data Access Language) interface, users can connect to a variety of leading database managers, including DB2, FoxBASE+, and SQL-based programs. The DataLens drivers let you query the external databases, view records through data forms, send SQL commands to external databases, and even perform relational joins among external tables, all from within your worksheets and all without requiring you to import the external database. Moreover, once you have created forms for database viewing and reporting, you can save the forms with the worksheets.

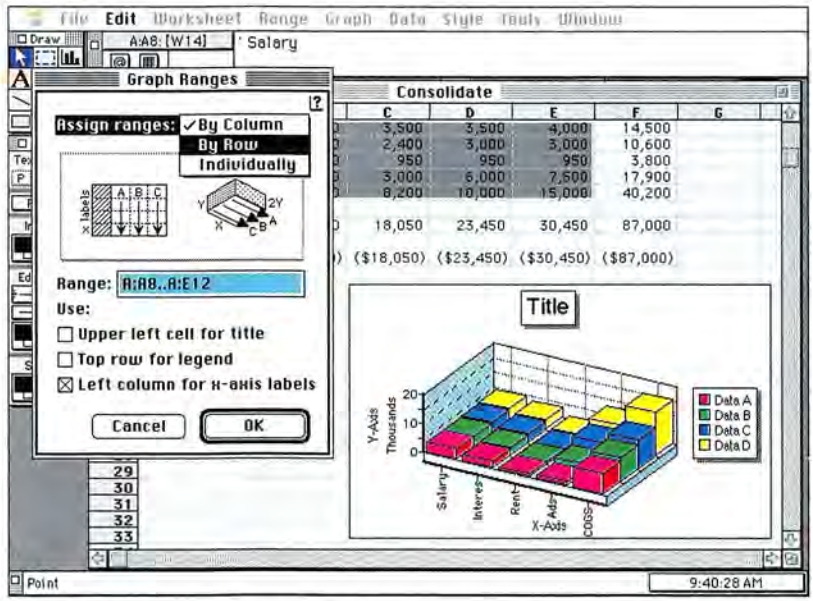
To ease the migration path for users of the DOS version of 1-2-3 who are considering switching to the Mac version (now that their favorite spreadsheet program is available for the Mac), Lotus has



A powerful and unique feature of Lotus 1-2-3 for Macintosh is its 3-D-worksheet capability. By combining several worksheets into one file, you can use three axes (rows, columns, and worksheets) to consolidate and analyze your data.

hidden the standard 1-2-3 command-line interface within 1-2-3 for Mac. To call it up, press the / key. Called 1-2-3 Classic, the window that appears constitutes the only solid bridge between the Mac and DOS versions of 1-2-3; it enables macros ported from DOS versions of 1-2-3 to run 100-percent correctly in 1-2-3 for the Mac (printing routines excepted).

The 1-2-3 Classic solution aside, fundamental differences between DOS-based and Mac platforms may cause a variety of problems when mixed-platform sites attempt to pass files of custom-built 1-2-3 applications between DOS-based machines and Macs. Graphs, text, colors, and more may not convert correctly, and macros may not always run properly. Lotus provides a 140-page manual that documents specific problems that may arise for those attempting to implement dual-platform strategies.



Lotus 1-2-3 for Macintosh's charting tools are especially impressive: You can move chart elements simply by clicking and dragging, and the Graph Ranges command shown here makes easy work of managing graph data.

Weak Links

Although there's plenty to like about Lotus 1-2-3 for Mac, the program is not without its foibles. You may encounter problems if you try to create links to documents that haven't been saved. Furthermore, if you move linked files, you must update the references to those files by typing the correct paths manually. By contrast, Excel provides a list of linked files, and you simply point and click to update references to those files that have been moved. Another feature missing from 1-2-3 is a preference for automatic updating of changed values in linked documents and a keystroke to trigger update links and recalculation.

Lotus 1-2-3 uses a semicolon after numeric values or formulas as a marker for cell comments. Comments are displayed in the console bar but not in the cell (unless you're using in-cell editing). This scheme prevents 1-2-3 from recognizing markers that appear with all-text labels, because the program reads the semicolon as part of the text. The program also lacks a provision for printing cell comments.

Experienced Excel users may find that 1-2-3's implementation of some features takes some getting used to. Range naming, for example, is a more complicated process in 1-2-3. In addition, mixed strings in cells, such as the address label *412 7th Ave*, must be entered with a label prefix (in this case, a quotation mark) in 1-2-3; otherwise, the program doesn't recognize them as labels and prompts you with an annoying beep, offering no explanation of what you've done to offend it.

Finally, from a developer's point of view, Lotus 1-2-3 doesn't provide the same range of abilities that Excel 3.0 does. With 1-2-3's macro language, savvy designers can take control of the environment from the instant they open the program, but 1-2-3's options for creating custom applications are not as robust as those of Excel. Custom dialog-box elements are limited to check boxes, radio buttons, and plain buttons, so you can't create pop-up menus or list boxes. Lotus 1-2-3's language also lacks pixel-precise control of the placement of dialog-box elements.

Lotus 1-2-3 for Mac is System 7-savvy and supports publish-and-subscribe, Apple events, virtual memory, 32-bit addressing, and Balloon Help.

The Bottom Line

Lotus 1-2-3 for Macintosh is a spreadsheet program with depth and accessibility. Its excellent interface is the most flexible of any Mac spreadsheet program available. Compared with Excel 3.0's confusing Short and Full Menu modes, coupled with clumsy charting, 1-2-3's interface makes it the easier to use of the two for newcomers to spreadsheet programs. For power users, including Excel 2.2 users torn between upgrading to Excel 3.0 or to 1-2-3 for the Mac, 1-2-3's 3-D worksheets and DataLens technology may be reason enough to make Lotus 1-2-3 for the Mac a more attractive option than Excel.

However, as the newcomer on the block (the Mac block, that is), 1-2-3 lacks the refinement of the veteran spreadsheet program Excel. Document linking needs polishing, as do other functions such as range naming and markers for cell comments. As a development environment, 1-2-3 is not as powerful as Excel. Overall, Lotus' offering is an attractive option for those working in an environment dominated by users of the DOS version of 1-2-3. In other situations, Excel continues to be the front-runner for most users of Mac spreadsheet programs.

— Louis E. Benjamin, Jr.

Get Info

Lotus 1-2-3 for Macintosh

¢¢¢¢

Published by: Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 577-8500.
Version: 1.0.
List Price: $495.

INTEGRATED SOFTWARE

ClarisWorks

ClarisWorks' seamless integration sends it to the head of the integrated-software class.

Bargain hunters will have no trouble bagging a good deal in today's integrated-software market. Two new entries in this burgeoning field — ClarisWorks and GreatWorks (see review, February '92, page 48) — offer impressive capabilities for less than $300. But what sets ClarisWorks apart from the competition is not the sum total of functionality within its modules but the way in which those modules work together.

It's All in the Frames

Although ClarisWorks is a collection of five application modules — word-processing, graphics, database, spreadsheet (including charting), and communications modules — its use of frames forges virtually seamless integration among modules, creating a superb blend of simplicity and sophistication.

You use ClarisWorks' frames to open one module from within another. You can, for example, create a spreadsheet frame as a separate box within a word-processing document. When you click within the frame, the program's menus shift from those of the word processor to those of the spreadsheet program. At that point, you can begin editing and entering data as well as updating the spreadsheet. Moreover, not only is spreadsheet data incorporated into the text document but the spreadsheet itself also becomes a part of the file; no cutting or pasting among documents is required.

You create frames by using tools from a palette shared by all the modules except the communications program. You simply select a tool and drag the cursor across the screen, and you have a frame. ClarisWorks provides separate frame tools for spreadsheets and text. In the program's graphics environment, every shape or text block in a document comprises a separate framelike object. No frame tool is available for the database module.

You may already be familiar with the concept of frames. MacDraw Pro uses a similar metaphor for creating text objects, and Excel 3.0 uses frames for embedded charts. But in ClarisWorks, the concept is extended significantly beyond what's been previously available, by providing enormous flexibility. You can open frames from within frames and link them — for example, linked spreadsheet frames can display separate portions of the same spreadsheet. Linked text frames allow text that overruns one frame to automatically flow into the next one — a useful feature for creating newsletters and fliers. Any frame can be moved or resized.

These capabilities are impressive, but our enthusiasm for ClarisWorks' frames was somewhat dampened by two limitations. First, you can't set text to run around a frame — the frame simply overlaps the text. Second, you can't use a frame to link to a separate document as you can with System 7's publish-and-subscribe.

Macros and More

In addition to frames, several other special features are accessible across the ClarisWorks modules. The package includes a rudimentary macro capability for automating sequences of repetitive actions. Because you can't view or edit macro scripts once you've created them, however, debugging or improving them is virtually impossible. Moreover, we were unable to fully execute the communications module's special Macro Wait command for automating log-on procedures. Even worse, running the faulty macro led to the corruption of the active stationery document. Claris acknowledged that there is a problem and promised that it would be fixed in an update.

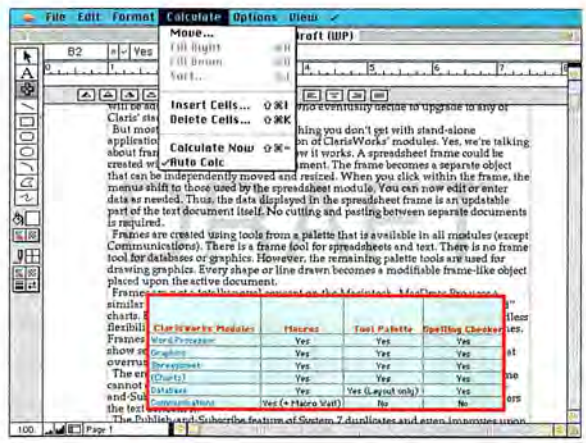
ClarisWorks provides a WYSIWYG Page View command for previewing documents. This feature is especially important in the database module, where it's required for viewing the summary totals in reports. It would also be helpful if you could use Page View to preview mail-merge output, but the current version of the package doesn't let you.

A spelling checker with thesaurus is available in all the modules except the communications module. The utility is similar to MacWrite II's, but it can't check selected text or check interactively. Other cross-module features include the ability to split a window into separate panes, zoom sizing, and an 81-color palette.

Together ClarisWorks' modules constitute an impressive lineup. Each by itself may not possess any earthshaking features, but let's face it, if you're looking for an outstanding array of options, you're probably better off with a stand-alone application. Overall, the modules are noteworthy for their clean, accessible interface design, a Claris hallmark. The unmistakable Claris interface also serves to smooth the upgrade path to Claris' more powerful stand-alone applications for users who outgrow the integrated modules.

The ClarisWorks word processor is clearly a descendant of MacWrite II. It easily manages its role as the package's workhorse. Although you won't find special features like MacWrite II's Custom Styles and Show Invisibles commands, the module does include the column, footnote, and mail-merge capabilities.

The object-oriented-graphics module



ClarisWorks' use of frames provides a superior level of integration among its modules. From within the word-processing document shown here, for example, clicking inside the spreadsheet frame makes it active, causing the ClarisWorks menus to shift to those of the spreadsheet module.

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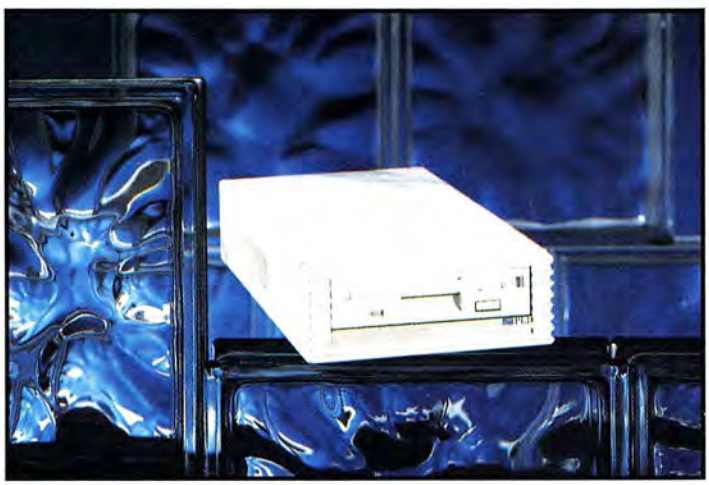
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PLI



Links among text frames become powerful tools that let you flow text from one frame to another, making it easy to create newsletters and fliers.



ClarisWorks' database module resembles its more powerful sibling, FileMaker Pro, although it can't read and write FileMaker files directly. With its focus on the creation of attractive layouts, the ClarisWorks module makes it easy to incorporate graphics into business forms.

supplies all the basic shape and arrangement tools you need. Both it and the word processor are roughly equivalent to their counterparts in rival GreatWorks.

The ClarisWorks database module copies its more powerful sibling, Claris' FileMaker Pro, with its focus on letting you create attractive layouts. The module supplies a choice of form, column, and label layouts, but it's missing FileMaker's scripting ability as well as other options for facilitating repetitive and sequential data entry. It does have excellent record-selection functions and also includes a summary field for generating grand summaries and subsummaries by category. Surprisingly, ClarisWorks can't read or write FileMaker files directly. You must use the DIF or SYLK format to pass data between the two programs, and layouts don't translate at all. Likewise, you must use the SYLK format to exchange data with Claris' spreadsheet program, Resolve. Claris promises to remedy this situation with the next release of the ClarisWorks package.

The spreadsheet module includes all essential calculation commands and functions, but its display and formatting options go beyond the essentials. You can, for example, adjust both column width and cell height, change font styles, and create cell borders.

Charts, a subset of the spreadsheet module, gives you a choice of seven chart types, including 3-D and exploding pie charts. The customization options for charts are nothing to write home about, but you can use ClarisWorks' text frames and drawing tools to enhance the appearance of charts. Charts take the form of separate subframes that overlay your spreadsheets, and they are instantly updated whenever you change the relevant spreadsheet data, a feature noticeably absent in GreatWorks. Using a spreadsheet frame, you can even include a chart as an updatable object in a text or graphic document.

The communications module is the weak link in the ClarisWorks chain. It has a separate manual, lacks the consistent look and feel of the other modules, and doesn't provide access to the Tool palette or the spelling checker. Still, it accomplishes basic communications functions, letting you access on-line services with relative ease. You can download files, although only the Xmodem and Text protocols are provided.

The ClarisWorks manuals, on-line Help, and HyperCard-based Tour are excellent. The documentation is clear and concise, although some minor features are either not mentioned or would benefit from a more detailed discussion. ClarisWorks is System 7-compatible and includes Balloon Help, but it doesn't support publish-and-subscribe. File import and export are handled by Claris' excellent XTND format translators.

Despite the breadth of capabilities offered by its modules, ClarisWorks weighs in at a diminutive 563K, which is only about 100K larger than MacWrite II. The package requires 900K of RAM and runs comfortably on low-end Macs such as the Classic and the LC.

The Bottom Line

Trying to achieve the perfect balance of features in an integrated-software package is no easy task. ClarisWorks comes closer than any other package currently available, but even it comes up short in a few areas. The package's communications module and macro capability are both weak, and the spelling checker should at least permit the checking of highlighted selections. Moreover, given its use of frames, the ability to wrap text around frames seems so obviously useful that we were amazed it was omitted. And finally, we'd like to see a database frame tool included.

But these shortcomings aside, our overall impression of ClarisWorks is unequivocally positive. Its pleasing, clean interface is a real plus, and the innovative use of frames as an integration vehicle is an overwhelming success. In both these areas, ClarisWorks clearly outshines GreatWorks, which provides no effective data integration across modules.

— Ted Landau

Get Info

ClarisWorks

★★★★½

Published by: Claris Corp., 5201 Patrick Henry Drive, Box 58168, Santa Clara, CA 95052; (408) 727-8227.
Version: 1.0.
List Price: $299.

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INPUT DEVICES

A³ Mouse, Little Mouse, MouseMan, Spark Cordless Mouse

Four third-party input devices easily upstage the Apple mouse.

Every desktop Mac ships with a mouse, but that doesn't mean that you're stuck with the input device Apple provides. In addition to trackballs, which will be reviewed in a future issue of *MacUser*, a variety of third-party mice, including Mouse Systems' A³ Mouse and Little Mouse, the Logitech MouseMan, and the Spark Cordless Mouse, offer attractive alternatives to the Apple mouse.

A³ Mouse

Mouse Systems' three-button A/UX-compatible A³ Mouse is an excellent programmable alternative to the Apple mouse. The 300-dpi (Apple's mouse has a resolution of 200-dpi) optical device uses a pad to deliver positioning signals to the Mac. It's highly accurate; slides smoothly; and with its higher resolution, is generally more responsive than the Apple mouse. The three-button design is suitable for both left- and right-handed users.

You use a control panel to program the A³'s buttons to invoke keyboard command equivalents or standard functions such as Delete. You simply highlight the image of the button you want to program in the control panel, and then you type the sequence.

The device has no rollers or balls, so you don't have to worry about grime and dirt gumming up the works, although you'll need to keep the mouse's pad clean.

Little Mouse

If the Apple mouse is the Honda Accord of pointing devices (sturdy, reliable, and a quality performer), then Mouse Systems' Little Mouse is the Mazda Miata. It's smaller, with sportier lines, and it handles with more accuracy.

The Little Mouse may be petite, but it's no wimp. Like its sibling, the A³ Mouse, it's a rugged, 300-dpi optical device with no moving parts. A single button on top of the mouse gives it a symmetrical feel and makes it suitable for both left- and right-handed users.

If you're looking for a simple input device, the Little Mouse's one-button approach will add greatly to its charm. Unlike other pointing devices that have multiple buttons and lots of features, the Little Mouse does just one thing — the normal click — but it does it well.



Clockwise from top left: the Mouse Systems Little Mouse, Logitech MouseMan, Mouse Systems A³ Mouse, and Spark Cordless Mouse. The MouseMan has outstanding software, the A³ Mouse and the Little Mouse offer exceptional pointing accuracy, and the Cordless Mouse lets you control your Mac from a distance.

MouseMan

Logitech's MouseMan features a graceful ergonomic design, so it fits comfortably in your hand, and it provides MouseKey software that's equally well designed. Together, its hardware and software add up to make it the best alternative device you can buy. The gently curved and sculpted MouseMan comes in both left- and right-handed models.

You can program the MouseMan's three buttons, using the MouseKey software. If you don't have an extended keyboard and want to program Fkeys, for example, you can use the MouseKey software to assign a button to a particular key. The software also lets you set controls for the device's tracking, speed, and sensitivity.

So far, these capabilities are par for the course for most programmable input devices. The MouseMan goes one step further, however, by letting you define sets of button assignments for each application you run. As you switch among applications, the device's button settings change accordingly. Like the A³ Mouse, the MouseMan works under A/UX, but its MouseKey software does not.

Spark Cordless Mouse

As its moniker indicates, the Spark Cordless Mouse works without a cord. The infrared device uses an LED to send points and clicks to a receiver that plugs in to the Mac's ADB port. Because of the device's somewhat shoddy construction, we don't recommend it for everyday use. However, if you need to control your Mac from a distance (the length of a 20-foot conference room, for example), the Spark mouse is a good choice.

The Spark Cordless Mouse is powered by two AAA batteries. When it hasn't been used for ten minutes, it powers down; to reactivate it, you must press a button on the right side (a better solution would allow you to reactivate the device with any action such as simply moving the mouse). A red diode on the receiving end lights up to let you know that a connection between the device and the Mac has been made.

The dispersion pattern on the infrared device is excellent. Even at a 90-degree angle, the mouse sends a signal to the receiver. Unlike most other pointing devices, however, the Spark Cordless Mouse

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comes with no software to add to its value.

As with the Apple mouse, the click button is on top of the device, but the Spark mouse doesn't perform nearly as well as Apple's model does. The chief disadvantage is the ball on the bottom that tracks movement against a mouse pad. The ball doesn't rest snugly enough in the base, so if you press down too hard, the ball gets shoved up into the base and doesn't connect with the rollers.

The Bottom Line

Of the four input devices we tested, the Little Mouse and the A³ Mouse get the highest marks for pointing accuracy. Logitech's MouseMan is also very accurate, and its superior software gives it a decided edge over the other three pointing devices. If you're looking for a way to operate your Mac from a distance, the Spark Cordless Mouse is a good solution, but for everyday use, its somewhat shoddy construction is a real disadvantage.

— Ben Templin

Get Info

A³ Mouse

★★★★½

Manufactured by: Mouse Systems, 47505 Seabridge Drive, Fremont, CA 94538; (510) 656-1117.
List Price: $149.95.

Little Mouse

★★★★½

Manufactured by: Mouse Systems, 47505 Seabridge Drive, Fremont, CA 94538; (510) 656-1117.
List Price: $134.95.

MouseMan

★★★★★

Manufactured by: Logitech, Inc., 6505 Kaiser Drive, Fremont, CA 94555; (510) 795-8500.
List Price: $129.

Spark Cordless Mouse

★★½

Manufactured by: Spark International, 1939 Waukegan Road, Suite 107, Glenview, IL 60025; (708) 998-6640.
List Price: $165.

OCR

ReadIt Pro and ReadRight for Macintosh

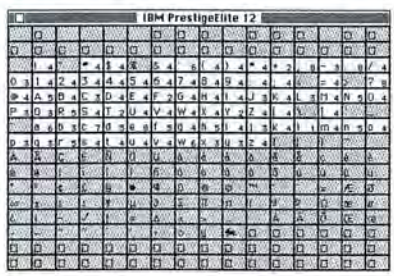
Two affordable OCR packages accurately read scanned documents but don't set any speed records.

For half the cost of a high-end package each, two recent releases provide capable OCR for cost-conscious buyers who don't mind forgoing speed for a more affordable price tag. Although ReadIt Pro and ReadRight differ greatly in features, both do an admirable job of reading scanned documents accurately. Neither package, however, competes favorably with the recognition speed of more-expensive packages such as Calera's WordScan Plus.

ReadIt Pro

ReadIt Pro is the newly enhanced version of Olduvai's ReadIt. The program requires a Mac Plus or better, a hard-disk drive, and 1 to 5 megabytes of RAM, depending on which of the program's two modes (Automatic and Trainable) you select. Flatbed scanners supported include the Abaton, Apple, Complete Page Scanner, DEST, HP ScanJet line, Lightning Scan, MacScan, Microtek, and ScanMan scanners.

ReadIt Pro is System 7-compatible, although in some cases, its installation, which is done through an installer, is not. We were greeted with "Application Not Found" when we double-clicked on Pro's installation file under System 7. This anomaly is apparently restricted to the first lot of Pro packages distributed. If you run into this problem, call Olduvai for replacement disks.



ReadIt Pro is a capable midrange OCR package that runs in Automatic as well as Trainable mode. You can run the program with as little as 1 megabyte of RAM in Trainable mode by creating type tables such as the one shown here.

Fortunately, the Pro version of ReadIt incorporates a key feature seriously lacking in the original version: omnifont capability. If you have 4 or more megabytes of RAM, you can take advantage of this feature and operate the program in Automatic mode. However, if you don't have that much memory, you still have several options. You can use Pro's crippled, less accurate form of omnifont recognition, which requires 2 to 3 megabytes. If you're operating with only 1 megabyte of RAM, you can still use the program, but you'll have to operate it in Trainable mode.

In Automatic mode, you can choose to read an entire page (multipage and continuous scans are possible too) or select portions of a page. Page decomposition is limited. Pro can strip out graphic images that rub shoulders with text, but it doesn't capture graphics and save them to separate files. Support for hand scanners is provided, including the ability to automatically stitch together two passes over a page.

In Trainable mode, you must build type tables to teach Pro how to recognize text characters or read foreign characters or specialized fonts. You can do this character by character, or you can use one of the program's shortcuts. For example, SmartLearn builds a type table by comparing a text file with an image of the same page. In fact, we found that training Pro on one or two paragraphs of a difficult document such as a fax dramatically improved the overall accuracy of the program's OCR processing. Processed files can be saved to disk in a variety of formats, thanks to the incorporation of Claris' XTND technology.

Search and Replace editing functions are available, and you can save document templates to disk and reuse them on pages with the same layout (such as forms).

The one rather annoying aspect of the

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ReadRight can preserve some document formatting, and it provides a helpful close-up view of scanned words as you use the program's spelling/error checker.

program is that it provides no visual feedback to inform users of recognition problems as the OCR progresses.

ReadRight for Macintosh

ReadRight is the newly introduced Mac version of OCR Systems' PC package. You need a Mac SE or later with a hard drive and 5 megabytes of RAM to run ReadRight reliably. The program provides support for the Apple, Abaton, Chinon DS-3000, Complete PC Page Scanner, HP ScanJet/ScanJet Plus, Microtek, and Panasonic scanners. Unlike ReadIt Pro, ReadRight doesn't support hand-held devices.

Page decomposition is handled either automatically or manually. ReadRight's compound, text, and graphics tools let you define and process areas of pages as text (including plain text, multiple-column text, and text mixed with graphics) or graphics (unlike ReadIt Pro, which simply strips out graphics). You can save text to a variety of formats, using Claris' XTND technology, and can save graphics regions as TIFF files. Recognition can proceed in Page or Stack (batch) mode. Deferred processing of multiple pages is also possible.

ReadRight includes an adequate spelling checker, and you can create a user dictionary. The program's Error Check window sports a handy zoom view of questionable words as they appear in the scan, which saves you the hassle of referring back to the actual page.

ReadRight includes several features found in high-end OCR packages. For example, the program retains some formatting. You can create document templates and can apply special settings to specified regions on a page (such as those that contain only numbers) to help the program determine what's being scanned. You can also white out areas that you don't want the program to process.

The Bottom Line

Neither ReadIt Pro nor ReadRight qualifies as a speed demon when compared with high-end packages. However, speed is not the whole story when it comes to OCR, and it shouldn't be used exclusively to judge even between these two less expensive packages. ReadRight took longer to process a poor-quality fax page than did ReadIt Pro, for example, but ReadRight did a much better job of turning the scanned page into acceptable text, with some formatting intact. Greater accuracy means less time spent correcting and editing. Moreover, when used to read clear, good-quality documents, the two programs performed at pretty much the same level.

All in all, we advise prospective buyers to weigh ReadIt Pro's trainability, smaller memory requirements, ability to bring in foreign-language or specialized fonts, and support for hand-held scanners against ReadRight's greater accuracy (especially in the case of poor-quality material) and advanced features such as template support and page-decomposition tools. Both programs deserve a look, and the best choice for you will depend on your particular OCR needs.

— Gregory Wasson

Get Info

ReadIt Pro

$$$½

Published by: Olduvai Corp., 7520 Red Road, Suite A, South Miami, FL 33143; (305) 665-4665.
Version: 3.0.
List Price: $595.

ReadRight for Macintosh

$$$½

Published by: OCR Systems, 1800 Byberry, Suite 1405, Huntingdon Valley, PA 19006; (215) 938-7460.
Version: 1.0.
List Price: $495.

SPREADSHEETS

Masquerade

Night Diamonds' spreadsheet compiler offers a low-cost way to distribute custom applications, but lack of total support for Excel 3.0 may dampen its appeal.

Masquerade is a spreadsheet compiler that turns worksheets into stand-alone applications. If you're a consultant or an in-house developer, that means you can use Masquerade to create custom applications with formulas and layouts that can't be modified by errant users. Furthermore, Masquerade saves you money, because you don't have to purchase a spreadsheet program for every user who runs your application, as you have to do with applications that are created with conventional spreadsheet programs such as Microsoft Excel. Although you can use Masquerade to turn Excel worksheets into applications, a major shortcoming is Masquerade's lack of support for specific features new to version 3.0 of Excel.

Riding on Excel

Masquerade is itself a full-featured spreadsheet program, but it's designed primarily to ride on the coattails of Excel. As such, it supports more than 100 basic Excel commands and more than 130 macro commands. In addition, the program provides in-cell text editing, integrated charting, linking, custom menu bars and dialog boxes, and the ability to add clip art to worksheets.

But, as already mentioned, Excel aficionados won't find features new to version 3.0 supported in version 1.1 of Masquerade. Masquerade is in the unfortunate position of playing perpetual catch-up with Excel, and several Excel 3.0 features aren't likely to be supported in Masquerade for some time. Moreover, some of Excel 3.0's esoteric features such as self-launching macros may never appear in Masquerade.

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Masquerade is a spreadsheet compiler that lets developers turn worksheets into stand-alone applications. Users can enter data into compiled worksheets, but they can't overwrite cell formulas. Unfortunately, Masquerade lacks support for several advanced new features in Excel 3.0.

easier to use by adding charts and buttons to compiled worksheets. Masquerade provided this feature long before Excel did, but the way it's implemented in version 1.1 of Masquerade doesn't work with Excel 3.0 worksheets.

Because Masquerade is a full-featured spreadsheet program, however, you can bypass the compatibility problems with Excel 3.0 by creating worksheets from scratch within Masquerade. But not surprisingly, you won't find Masquerade's spreadsheet-program features to be on a par with those of Excel.

Applications compiled with Masquerade let you lock your code away in a form that can't be read by prying eyes. You can hide worksheet formulas, and data saved by Masquerade-generated applications contains only values. As a result, users can enter data, recalculate, print, and save documents, but they can't overwrite cell formulas. An encryption scheme also helps you make your work secure.

In addition to touting Masquerade's low cost and tamperproof formulas, Night Diamonds claims that another benefit of compiling spreadsheet applications from worksheets is that users can get going faster than if they had to learn a full-blown spreadsheet program. And it's true — support staffers shouldn't have to be spreadsheet jocks to use a template. But Masquerade is not unique in this area; a well-designed Excel application can deliver the same degree of user-insulation.

Masquerade does let you do some things to your worksheets that Excel doesn't. For example, you can place macro code directly into a worksheet rather than into a separate macro sheet. But this can be dicey business, as any Lotus 1-2-3 veteran knows. If users are allowed to insert rows in the wrong place, you run the risk of fracturing important macros.

Because Masquerade does not support all of Excel's commands and functions, you may encounter some difficulty when you convert existing Excel spreadsheets to Masquerade before compiling them. Masquerade reads SYLK and text-only files, which means that some worksheet elements can get lost in the translation. Masquerade conversions would be greatly simplified if the program could read Excel's proprietary file format directly.

In addition, creating check boxes and radio buttons with Masquerade is cumbersome. Masquerade doesn't provide a graphics editor, so you must use commands to specify button type and location. By contrast, Excel's dialog-box editor makes it easy to design dialog boxes that contain check boxes, radio buttons, and drop-down lists, because you get a precise preview of what the dialog box will look like. Placing charts on worksheets is more awkward in Masquerade than in Excel 3.0. Masquerade applications are also limited to a single window, which may be a problem for some developers.

The Bottom Line

If you're looking for a low-cost way to create and distribute spreadsheet applications of low-to-moderate complexity, Masquerade may be a worthwhile investment. On the other hand, if you're hooked on the latest and greatest Excel 3.0 features, you're probably better off developing applications with Excel. There's no telling how long the wait may be for a Masquerade update that supports your favorite Excel 3.0 features.

— Louis E. Benjamin, Jr.

Get Info

Masquerade
$$$
Published by: Night Diamonds Software, P.O. Box 1608, Huntington Beach, CA 92647; (714) 842-2492.
Version: 1.1.
List Price: $695.

UTILITIES

Cataloger, OffLine, and ColorDex

If you're buried under mountains of floppy disks containing archived files, three utilities can help you organize the contents of the disks.

Cataloger, OffLine, and ColorDex are utilities that take the tedium out of tracking the contents of all those floppy disks you've stashed in various drawers and diskette files. In a nutshell, each utility copies information about the contents of a floppy to a catalog file on your hard disk, allowing you to locate indexed files without actually mounting the floppy disks that contain them.

Cataloger

Cataloger provides the most comprehensive database for managing floppies. Cataloger lets you create multiple catalog files, whereas OffLine and ColorDex use a single, default database. Cataloger can also index a hard disk, a file server, and removable media.

Cataloger lets you browse through the contents of any indexed disk, using a Finder-like view, right down to the Get Info comments. It even lets you add more information, such as the name and address of the creator, to a file's listing. Cataloger can also catalog the contents of StuffIt Classic and StuffIt Deluxe archives.

Cataloger lists files only in the order in which it finds them; you can't order them alphabetically or chronologically. The utility prints simple, bare-bones labels to Avery #5196 laser labels, and you can add row and column information for any other labels you might use.

OffLine

OffLine has fewer bells and whistles than Cataloger does, but its features are better designed and a sparse interface

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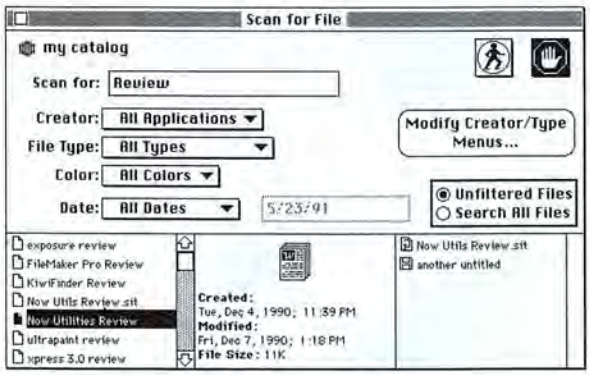
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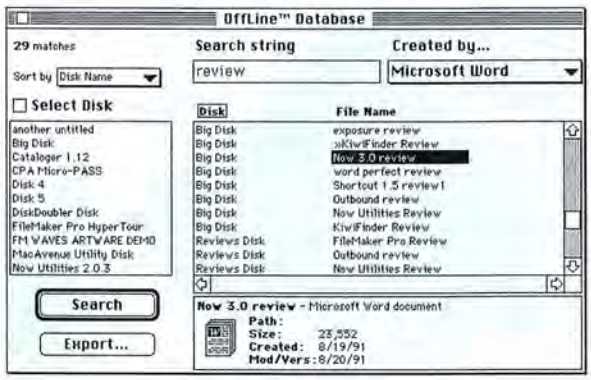
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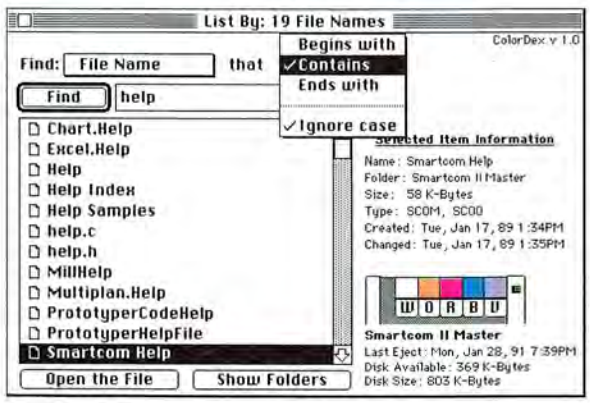
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Cataloger is a floppy-disk organizer that uses several pop-up menus to help you configure searches for indexed files. One drawback is that the utility displays files only in the order in which they're found, not alphabetically or chronologically.



OffLine has a streamlined interface and simple selection criteria that help you find files on cataloged floppies quickly, displaying the files it finds in lists that can be sorted by disk or by filename.



ColorDex uses a unique color labeling scheme to help you organize your floppies, but the system is often more trouble than it's worth. On the other hand, the utility's INIT, which automatically tracks changes to indexed floppies, is a real plus.

makes it easier to find files. OffLine also handles hard disks, servers, and removable media such as SyQuest or Bernoulli cartridges. The search criteria it provides are not as robust as those of Cataloger, but they're more than adequate.

OffLine automatically maintains a list of every application's type and creator signatures, so you can simply select the application or signature from a pop-up menu — a much easier process than Cataloger's cumbersome approach.

A nice feature for superorganized users is the ability to assign a unique serial number to every floppy that OffLine indexes. When you print labels, OffLine adds the number to the label, so you can store all your floppy disks in numbered order.

ColorDex

As you may have guessed from its moniker, ColorDex's unique feature is its use of colored labels. What is most noteworthy about the utility, however, is an INIT that automatically tracks changes to previously indexed floppies as they're ejected. As a result, whenever you search for information, you can be sure that it's current.

ColorDex's colored-label scheme is certainly original, but most users are likely to find that all the peeling and pressing of multiple labels is more bother than it's worth. It's unfortunate that ColorDex's maker didn't include an option for printing more-conventional labels. Otherwise, the utility is a cleverly designed program. Although your searches can be based only on a file's name, the utility's flexible display options, including the ability to view a list of indexed files by disk or folder, make up for the somewhat simplistic searches.

The Bottom Line

Of the three cataloging utilities, Cataloger has the most nooks and crannies for storing information about files, but it makes some operations cumbersome. OffLine, on the other hand, is simple and direct, making it easy to search for files. However, neither OffLine nor Cataloger can automatically update file information, as can ColorDex. Unfortunately, using ColorDex's colored-labeling scheme makes for more work than using conventional labels. Overall, although each utility has its strengths and weaknesses, OffLine does the best job of making the process of organizing and managing floppies fast and painless.

— Eric Taub

Get Info

Cataloger

$$$

Published by: Masters Publishing Co., P.O. Box 1940, Ann Arbor, MI 48106; (313) 996-8108.
Version: 1.1.
List Price: $59.

ColorDex

$$$

Published by: DataTree, 24929 S.E. 216th Street, Napel Valley, WA 98038; (206) 432-2807.
Version: 1.2.
List Price: $49.50.

OffLine

$$$½

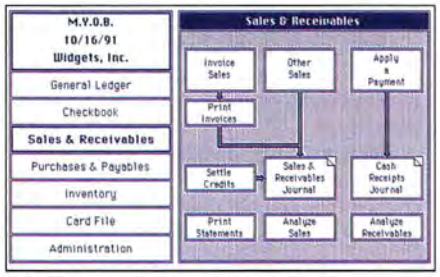
Published by: SNA, Inc., P.O. Box 3662, Princeton, NJ 08543; (609) 799-9605.
Version: 2.1.
List Price: $99.95.

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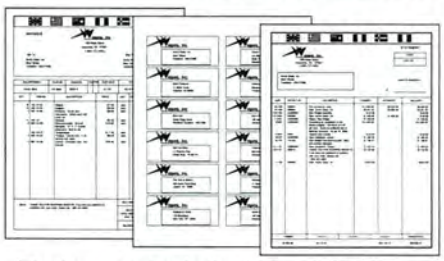
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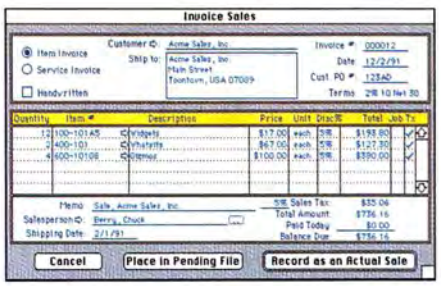
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MacWorld, November, 1991



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MacWorld, October, 1991

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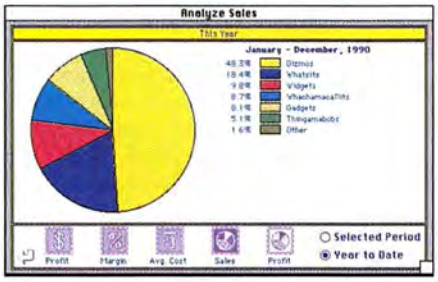
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NUMERICAL ANALYSIS

JMP 2.0

For the most innovative, versatile approach to statistical analysis, no other package matches JMP.

JMP is statistical software that marches to the beat of a different drummer. Its innovative balance of EDA (exploratory data analysis) tools and traditional hypothesis-testing procedures makes it unique among statistical packages. Although JMP may be different, it's hardly a niche product within the statistical category. Its breadth of abilities makes it an excellent choice for any knowledgeable user of statistical software who is looking for an unstructured approach to exploring and analyzing data.

Consistent with its EDA emphasis, JMP makes frequent use of interactive graphs as a means of uncovering hidden or hard-to-find data facets. For instance, with a rotating 3-D spin plot, users can control the spin of the axes to attain the most informative view of their data. Similarly, selecting any data point on a graph brings up an identifying label that makes it easy to identify outlying data points on a scatterplot.

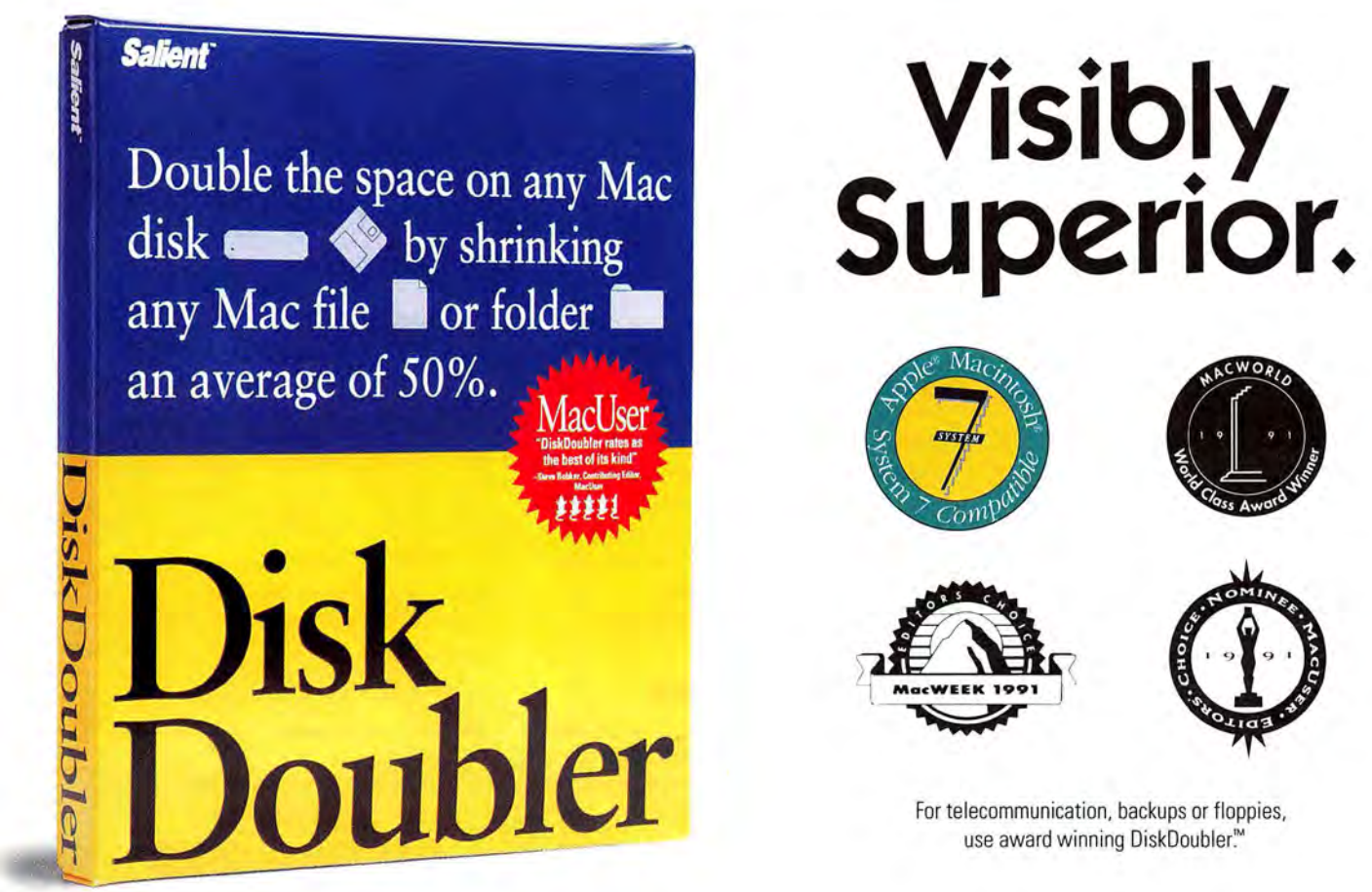
Exploring Your Data

JMP opens to a spreadsheetlike window, into which you enter or import data. From there, you can select any of eight statistical platforms. Launching a platform opens a separate window that typically displays a series of related graphs and numerical-output tables.

Once you've opened a platform, you can explore graphic and numeric functions further. For example, the Fit Y by X platform can, among other things, generate scatterplots, simple regression lines, and density ellipses. It also provides regression coefficients, t-tests, and one-way ANOVAs (analyses of variance). Depending on the nature of the data (interval versus ordinal versus nominal, for example), this platform can also display chi-square analyses and logistic-probability regressions.

Other statistical platforms provide options for histograms, multiple regression, and nonlinear regression as well as options for other factorial and multivariate analyses. A common display found in many of these models is the leverage plot, a derivative of regression analyses that's useful for viewing a variable's effect on results, in both single- and multiple-factor designs.

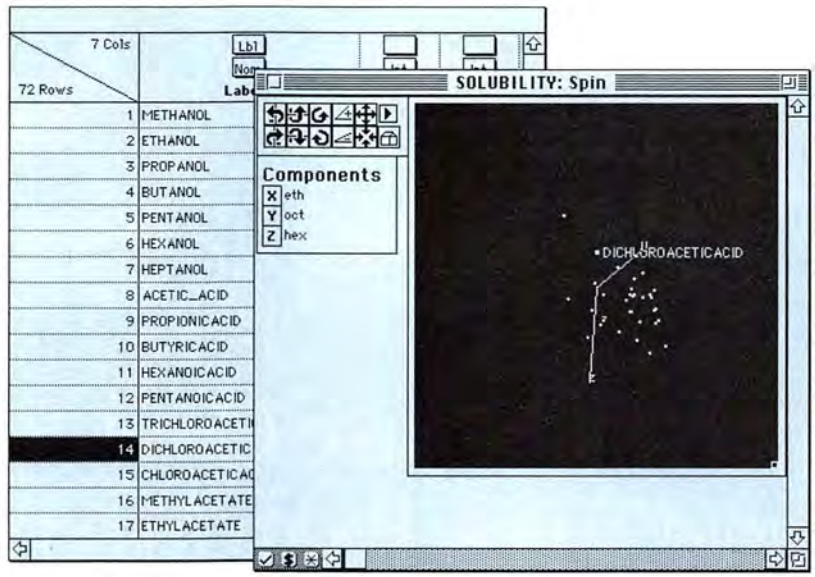
Version 2.0 of JMP adds two new platforms: Nonlinear Fit and Special Graphs (bar and pie charts). In addition, post hoc tests, displayed both graphically



and numerically, are among the many new options that have been added to existing platforms in version 2.0.

JMP's platform approach is consistent with its philosophy of presenting users "with everything you need at once." The goal behind this approach is to make JMP easier to use by not requiring a separate command for each desired output. This approach sometimes backfires, however, especially if you have a simple focused goal in mind, such as a basic ANOVA. JMP provides no ANOVA command. As a result, you must select the appropriate platform and hunt for the ANOVA table from among numerous output options, which can sometimes be overwhelming.

Moreover, in some cases, you must select further options from a variety of pop-up menus located within each platform. Adding to the potential confusion, the commands found within a particular pop-up menu shift according to the nature of the platform and data type selected. Until you've become an experienced user, attempting to recall where you last found



The JMP statistical-software package is a unique blend of data-analysis and hypothesis-testing tools. It relies heavily on interactive graphing to help users understand their data. For example, you can rotate the 3-D plot shown here to get the best view of the data it represents.

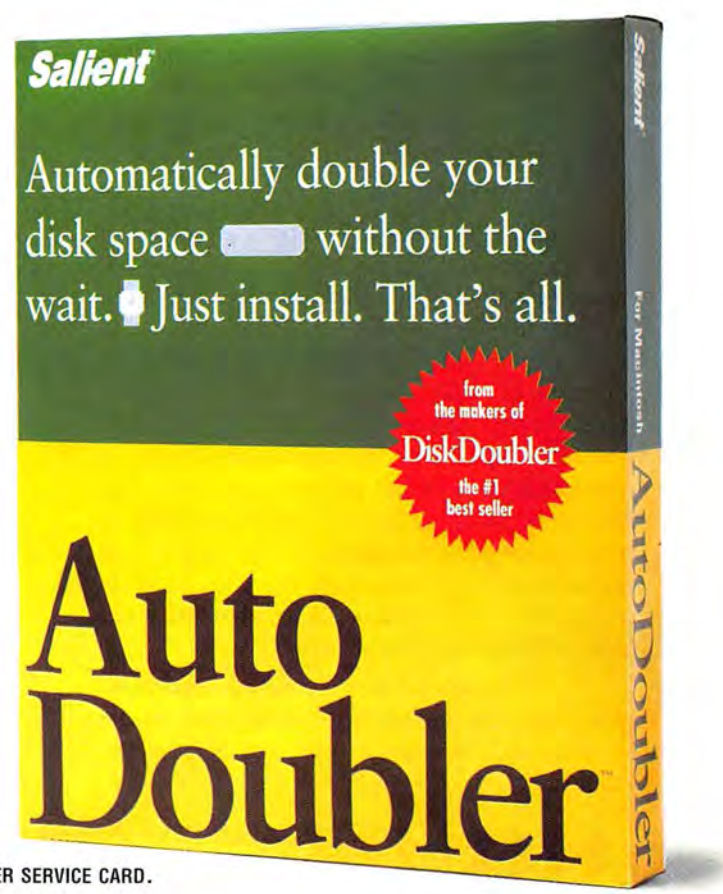
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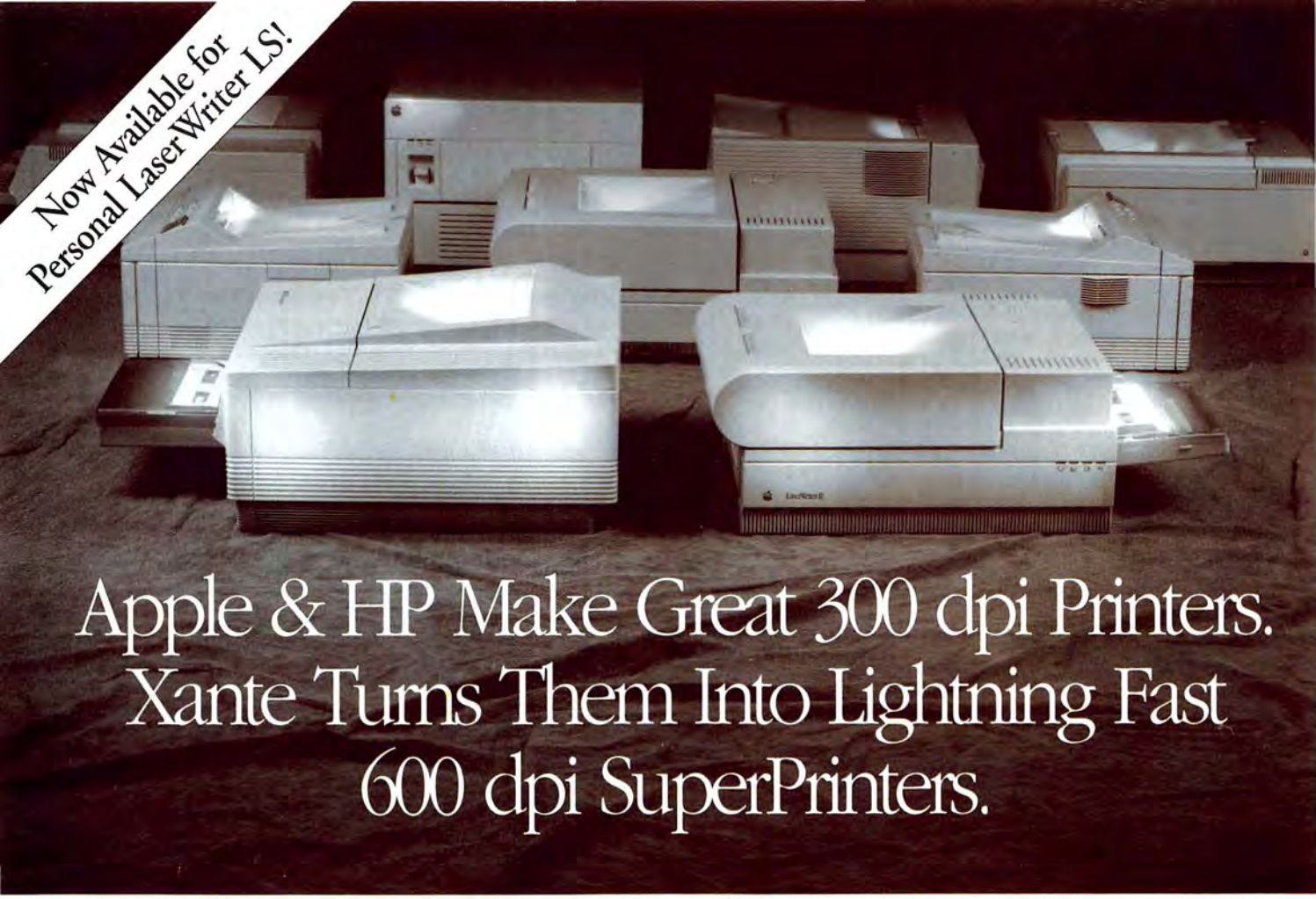
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MacUser Magazine, Sept. 1991

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a particular command can be frustrating.

In contrast, one of JMP's greatest strengths becomes apparent even before you launch a platform: The program excels at data transformations. The star attraction is JMP's point-and-click calculator, which you can use to create columns of derived variables. The calculator's built-in functions include numerous mathematical operators and conditional comparisons. Unfortunately, open platforms and other linked windows are not updated when changes are made to the original data sheet, a factor that detracts from JMP's exploratory aspect.

JMP's interface is well designed. Its help functions are particularly outstanding and can be activated from a general Help menu, from strategically located Help buttons, or contextually by activation of the ? tool. Balloon Help is available for System 7 users.

The program's documentation, although adequate, could stand improvement. Particularly frustrating is JMP's *Introductory Guide:* Exact procedures are often stated too vaguely to be clearly carried out, defeating the guide's attempt to be a step-by-step tutorial. Moreover, illustrations are occasionally misidentified, and far from being introductory, the manual gives several advanced examples that will test the statistical knowledge of many professionals. This is decidedly a drawback, especially for novices, but it nevertheless brings to the fore that although JMP may be easy to use, it qualifies as a sophisticated statistics program.

The Bottom Line

In the realm of statistical software, JMP is in a class by itself. In approach and scope, it's not intended to compete directly with other statistical programs. But that's not to say there are no good reasons for considering competing products. If you're committed to EDA, the icon-oriented design of Odesta's Data Desk provides a more interactive environment that includes more-extensive EDA options. If you intend to primarily use the more common hypothesis-testing analyses and associated data plots, look to Abacus Concepts' StatView. If you want the breadth of a mainframe statistical package, opt for Systat, from Systat, Inc. For presentation-quality graphics output, DeltaPoint's DeltaGraph Professional is a better choice. But as an amalgam of all these approaches, no other program succeeds as thoroughly as JMP does.

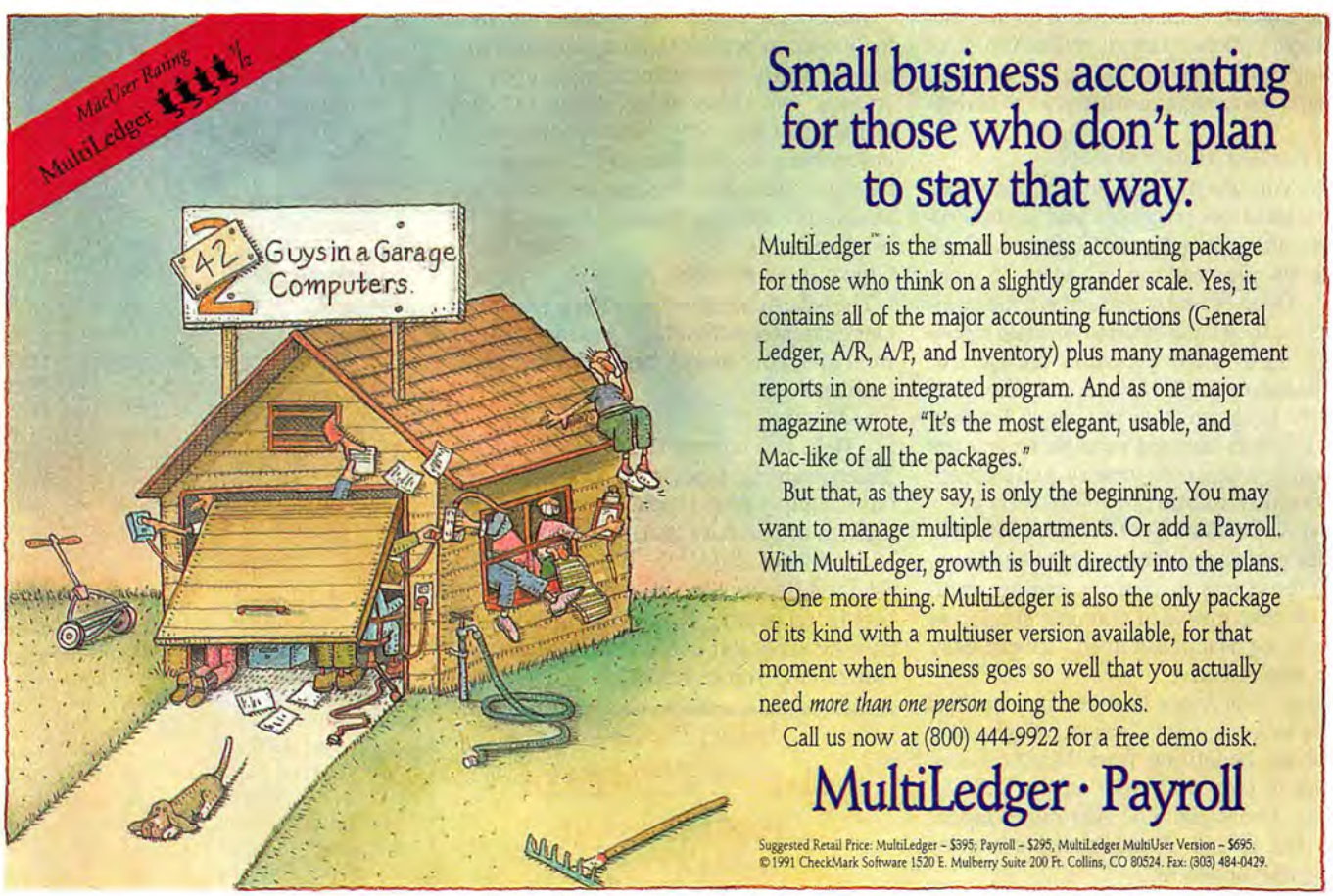
— Ted Landau

Get Info

JMP

★★★★½

Published by: SAS Institute, Inc., SAS Campus Drive, Cary, NC 27513; (919) 677-8000.
Version: 2.0.
List Price: $695 (JMP-IN, a limited version of JMP 1.0, is available for student use at $39.95).



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How to Master 20 Popular Macintosh Programs Without Ever Reading The Manuals

Macintosh Programs Can Be Learned in a Few Hours With the Right Training

Over the past four years I've been associated with over 50,000 people attempting to learn the Macintosh computer. I've watched as each person wages their own personal, private battle to master the computer and the most popular Macintosh programs.

I've seen their frustration, have empathized with their confusion, and understood their computer fears. I've talked to workers who have had new computers and new programs simply dropped on their desk with the directive to, "learn this." I've listened to people who have struggled night after night trying to read and understand a computer manual. Can you imagine trying to understand and master 4th Dimension from the manual?

You would be surprised at the number of people who have confided with me the fact that they've given up trying to learn some of the programs. They put the box on the shelf and write the expenditure off as a bad investment.

Hard Earned Money Wasted

Can you imagine how much money has been wasted on programs and computers that are sitting abandoned? Right now think of the people working on Macs in your office. Do they really understand the computer? Do they know what to do when it goes down? How many programs are each of your people using? Have they really mastered the programs they're using? Do they know the short-cuts and valuable techniques that will save you time, money, and increase your professionalism?

An Excellent, Low Cost Training Answer

Four years ago I founded MacAcademy. My purpose was to create a training organization that provided training similar in nature to the Macintosh itself - simple, easy to use, and effective.

Now, four years later the concept has proven to be a great success. Right now people are benefiting from MacAcademy training in over 100 cities in the U.S., in Canada, Great Britain, Australia, Japan, Hong Kong, and 22 additional countries throughout the world.

MacAcademy training is successful for one reason - it works!



The Video Answer

Two years ago we introduced the MacAcademy Video Training Library. This library now includes over 45 different titles. Each video is 2 hours long and offers clear, concise, effective training for the Macintosh and over 20 popular programs. In many cases you can purchase up to 6 hours of training for one program.

MacAcademy has resisted the temptation to follow competitive training programs who have recently implemented large price increases. Our videos started out at $49 each and are still only $49. The best training in the business for less than $50. This low cost training alternative has proven to be the Macintosh training choice of over 10,000 companies.

Guaranteed Results

The MacAcademy reputation is excellent. Our guarantee is simple: If you're not happy we'll give your money back. No hassles or problems.

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Here is a current list of MacAcademy Video training tapes now available. To order, simply send check, credit card information, or purchase order to MacAcademy Videos Dept. MU3/92 477 S. Nova Rd. Ormond Beach, FL 32174 or call the numbers listed below. Now is the time to start training. Thank you for allowing MacAcademy to help you in that effort.

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OUTPUT DEVICES

DeskWriter C

Hewlett-Packard breaks price and print-quality barriers with its new low-cost color inkjet printer.

Until now, affordable color printing has been more of a dream than a reality for Macintosh users. With the introduction of the DeskWriter C color inkjet printer, however, peripherals giant Hewlett-Packard has altered the playing field. At $1,095, the DeskWriter C represents a breakthrough in price and color-print quality. However, not everything comes up roses with HP's new printer. For one thing, print speed depends on your Mac's speed, and even a fast Mac doesn't make for fast color output. And despite HP's claim that the DeskWriter C is capable of printing on plain paper, we found image quality to be very much related to the type of paper you use.

The Plain-Paper Myth

Despite HP's claims to the contrary, the DeskWriter C requires specially formulated paper to achieve its best print quality, as do other inkjet printers. Certainly you *can* use plain paper, but the results won't be as sharp as those you can get with special coated paper. Moreover, full-page images put so much ink onto the paper that plain paper comes out damp and wrinkled and doesn't lie flat even when it's completely dry.

Color printing from the DeskWriter C is slow, placing heavy demands on the host Mac's RAM and disk space. To print from System 7 or from MultiFinder under System 6, the host Mac needs at least 4 megabytes of RAM to approach a reasonable print speed. Although the DeskWriter C can whip out simple charts with solid blocks of color in just a few minutes, pages with color paint images or scans take 10 to 15 minutes to print, even when you're printing from a Mac IIfx loaded with gobs of memory.

We mention these points not to disparage HP's new printer but simply to set realistic expectations for potential buyers. Keep in mind that color printers free of such limitations are available, but be prepared to spend about five times as much as you would for a DeskWriter C.

The printer is easy to set up: A single DIN-8 connector takes either a standard serial cable for direct connection or a LocalTalk connector for network printing. The DeskWriter C comes with two cartridges, one for black and the other for color. Cartridge swapping happens to be one of the DeskWriter C's less endearing features. The color cartridge contains only cyan, magenta, and yellow inks and therefore prints a composite black rather

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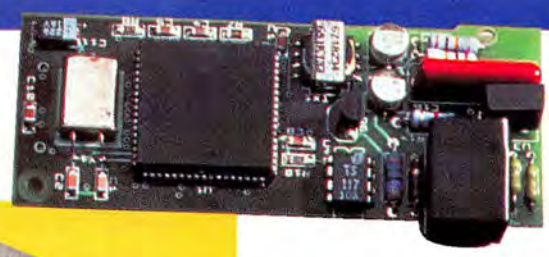
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John Greenleigh Photo

Power for your PowerBook

Modem Power



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PowerModem is a 100% internal send/receive 9600 bps fax/2400 bps data modem designed specifically for the Macintosh PowerBook. It receives fax transmissions at 4800 bps, is Hayes compatible and includes powerful fax software. #4948



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This external display interface for the Macintosh PowerBook and Classic II is ideal for the busy executive or sales professional on-the-go. It supports 256 colors and can even be used as an interface to large screen projectors. And it comes with the hard-to-find PowerBook adapter cable. #4901

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Pre-Print 1.5 $328
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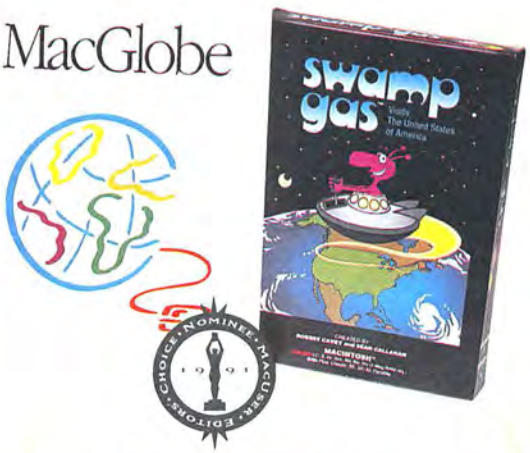
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Precision Color Display $2995
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Best Animation Program
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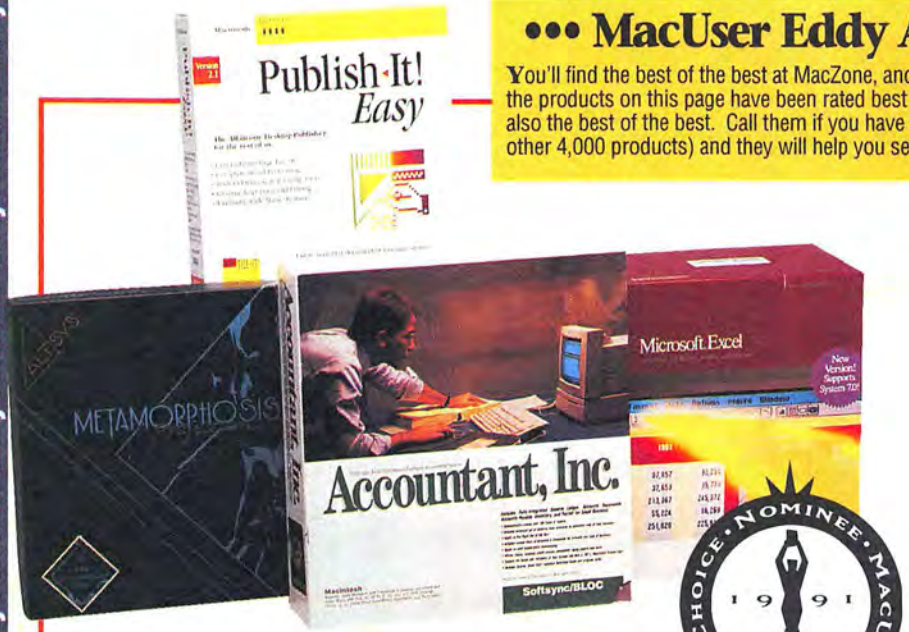
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NEC MultiSync FG Monitors

Announcing the NEC FG series of MultiSync monitors. Completely redesigned from the inside out to give your Mac brighter, sharper, more accurate images. The FG series monitors features AccuColor Control System which provides unprecedented color accuracy. Now you can match on-screen colors to printer output, other monitors and reference systems such as Pantone. Advanced flat square screen technology gives you exceptionally sharp text and crisp graphics with edge-to-edge display for greater active screen area. Supports the entire Macintosh II family and the new Quadra 700 and 900 systems. #7399

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Color for your Quadra



Mac FG 24X Color Display Interface $1699

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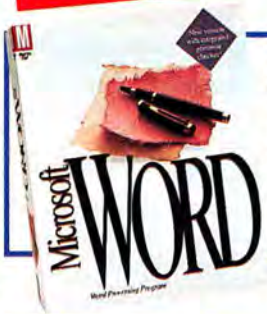
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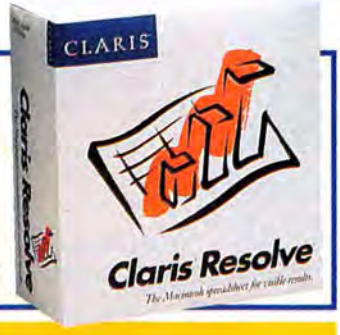
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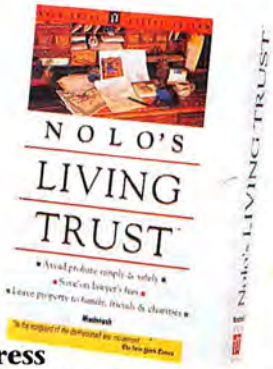
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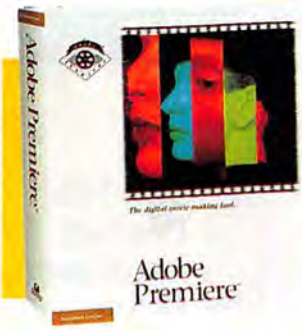
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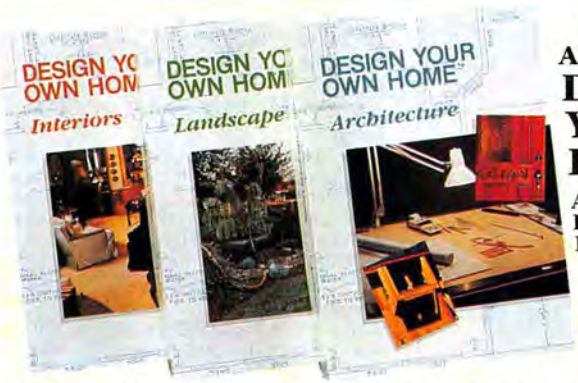
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4929	Costar LabelWriter II+	309	❼
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than a true black. The composite black has a greenish tinge that doesn't work well for monochrome printing. It also requires a lot of ink. As a result, for black-and-white printing, you'll probably want to swap in the black cartridge.

If you try to print a color page with the black cartridge installed, an error message appears that asks you to switch cartridges. If you want to print a gray-scale proof of a color page, you can choose the Use Installed Cartridge option.

In a Dither

Two Chooser-level drivers, one for direct serial connection and one for LocalTalk, work as expected. Special controls for color printing appear in your application's Page Setup dialog box. The DeskWriter C doesn't use halftones for color printing. Instead, you can choose one of two dither patterns and set the intensity level of the ink to match your paper and your image. The scatter dither seems to work best on scanned images, whereas the pattern dither best suits original artwork.



The DeskWriter C color inkjet printer is a good choice for price-conscious buyers looking for acceptable color-output quality. However, it won't win any speed contests and you still need special paper for the best output results.

A third option lets you select the eight fixed colors (red, green, blue, cyan, magenta, yellow, black, and white) for faster printing of simple graphics such as spreadsheet charts. An ambiguously labeled option — Complex Color Printing —

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attempts to provide a close match between the color on the monitor and that of the printed page. It seems to work best with scanned images. Plan on a certain amount of trial and error to unlock the secrets of this option, especially because the manual doesn't offer much insight on this particular feature.

The DeskWriter C's Print dialog box lets you select three print qualities: Best, Normal, and Draft. Draft is fast but generally isn't suitable for color printing. Best is slightly slower than Normal on most color pages and is the default for transparencies.

The least successful aspect of the software is the print spooler. The current release doesn't work with System 7, although a System 7-compatible upgrade is promised for 1992. For MultiFinder users using System 6.0.5 or later, the HP Backgrounder and HP Print Monitor files provide Chooser-selectable background printing; however, you must launch HP Backgrounder before you can choose background printing. You can do so manually or use the HP Backgrounder Startup INIT to launch it automatically at startup. We found that we often had to quit all other applications to free enough memory for background printing, and foreground response slowed to a crawl during printing.

If you own HP's original DeskWriter, you can exchange it for the new DeskWriter C for $450. Call HP at (208) 323-2551 or (503) 750-2035 for details.

The Bottom Line

Hewlett-Packard first broke ground in affordable quality printing with the original DeskWriter: a quiet, unassuming inkjet printer that quickly won the hearts and dollars of users longing for 300-dpi output that didn't cost an arm and a leg. HP has followed up on its overwhelming success in the monochrome arena with a worthy color offering.

The DeskWriter C may not be the perfect color printer, but it delivers a lot of bang for relatively few bucks. Its monochrome printing is fast enough and good enough to make it an attractive all-around printer, and the AppleTalk connection adds color output to Macintosh networks for less than the price of the average color scanner. However, we were disappointed that the DeskWriter C's print spooler doesn't work with System 7 and that print performance leaves something to be desired. But overall, anyone who has dismissed color output as too expensive should take a look at the DeskWriter C.

— Bruce Fraser

Get Info

DeskWriter C

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Manufactured by: Hewlett-Packard, 18110 S.E. 34th Street, Camas, WA 98607; (206) 944-8110.

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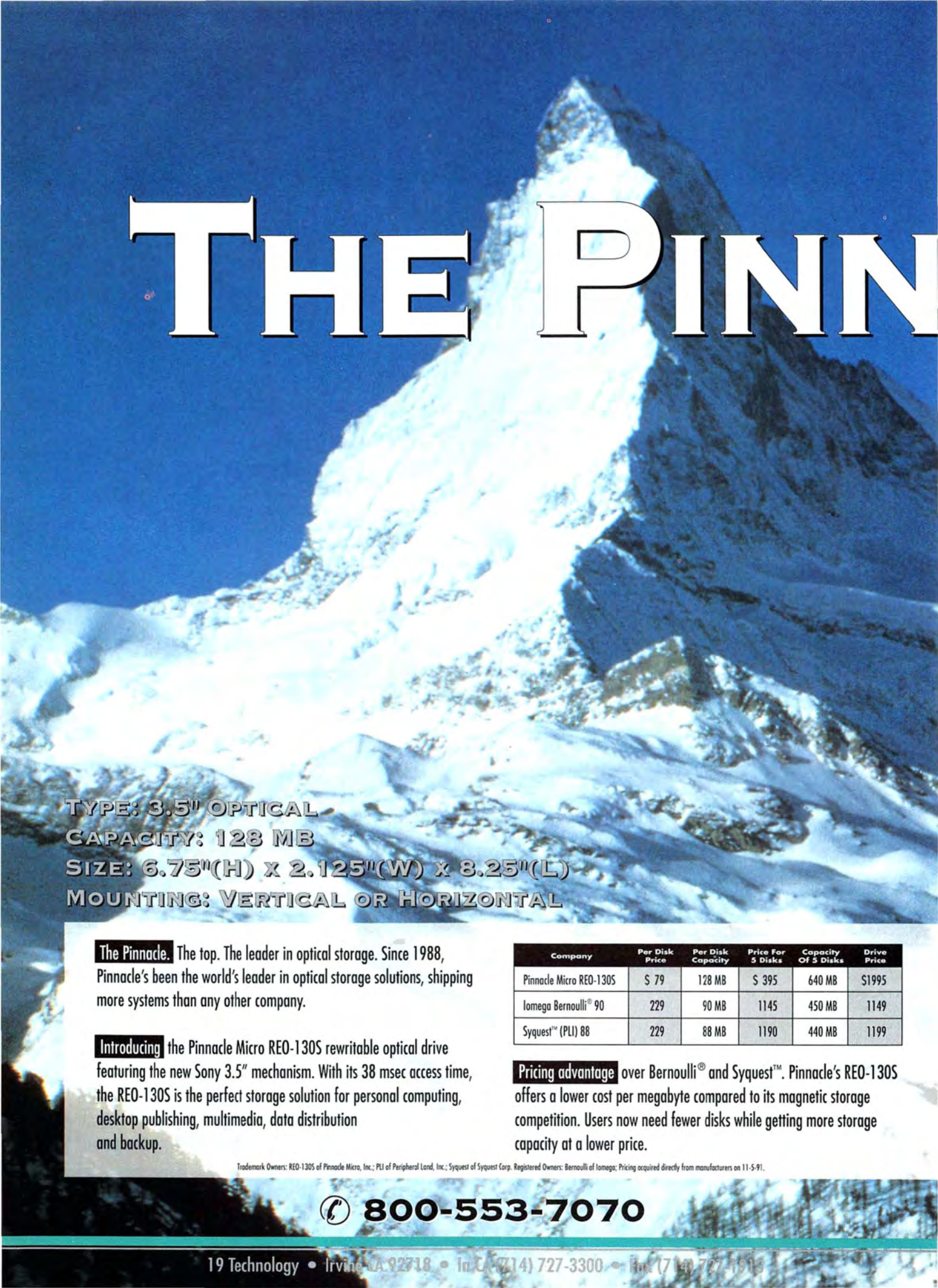
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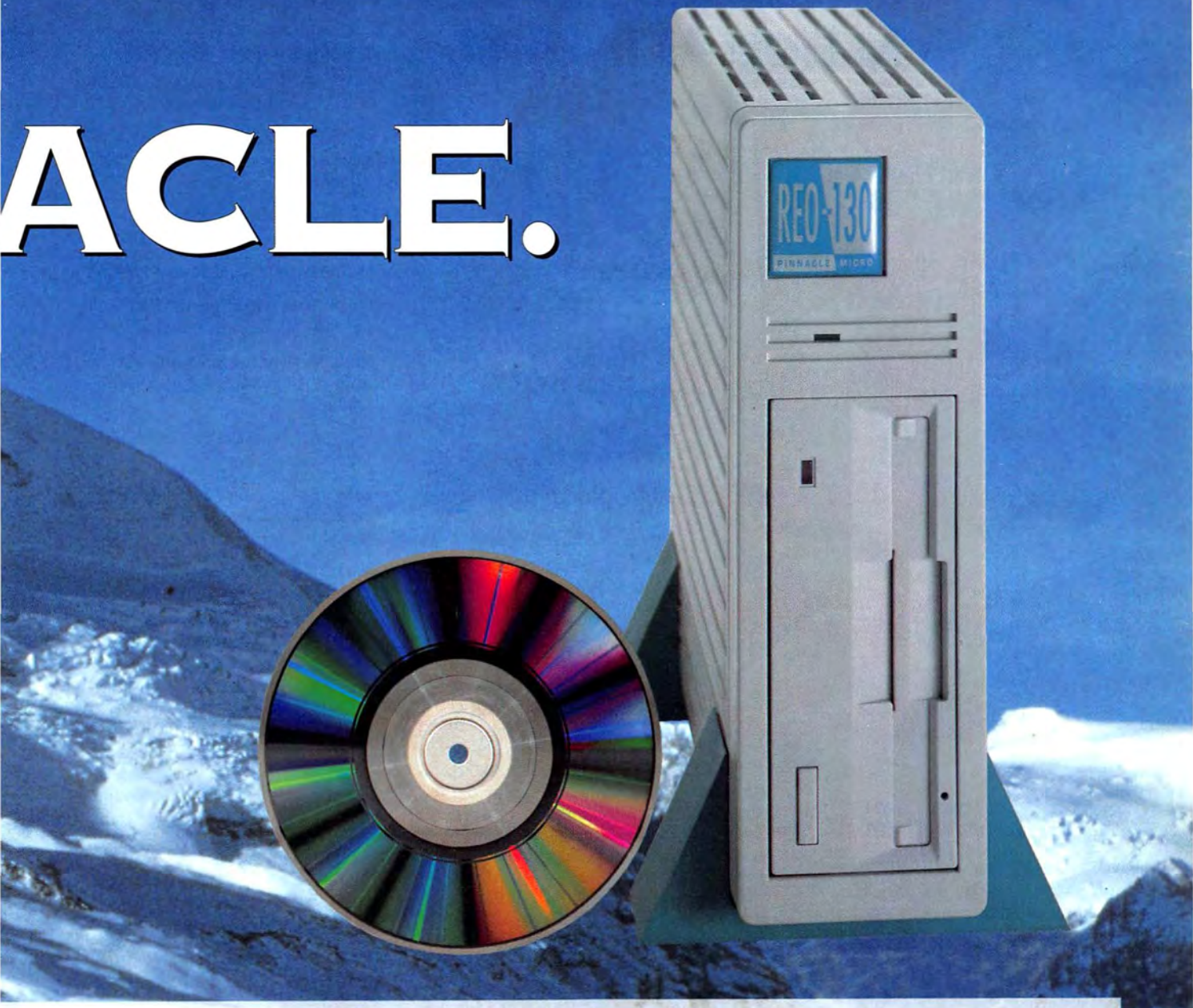
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QMS ColorScript Models 10 and 30*i* shown

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QUICK CLICKS



TeleFinder Pro

★★★½

By adding a terminal option to its TeleFinder Pro bulletin-board service's graphical front end, Spider Island Software is attempting to break new ground in general-purpose telecommunications software. The idea is innovative, but its execution leaves something to be desired.

Despite its aspirations to become a general-purpose program, TeleFinder Pro is still best for connecting to its own BBSs or to other TeleFinder Pro users. What makes the program unique is that when you launch it, it simulates the Mac's Finder, making the thorny process of telecommunications more intuitive.

TeleFinder's interface is a gray desktop that displays icons representing your hard disk, folders, and files. As with the Finder, you can access your entire disk hierarchy, and you can even launch files by double-clicking on an icon. When you connect through a modem to a TeleFinder BBS, the program treats the service as another hard disk mounted on your desktop. To transfer a file, you simply drag it from a file folder on the BBS to your local hard disk. You can even do batch transfers by selecting multiple files and dragging them over as a group — a big advantage over the single-file transfer supported by most BBS software.

If, however, you want to connect to any of the major on-line services or a text-based BBS with TeleFinder Pro, you must opt for TTY terminal emulation. Again, the program does a good job of easing the pain of connecting. By using an auto-dialer and macros, it standardizes the log-on process for the major on-line services. TeleFinder's macro language can be used to script log-on procedures for custom services and systems too.

But as easy as it is to log on to TeleFinder, its terminal emulation lacks finesse. You can select only the text that appears in the window. If you save your session, the program becomes almost unusable, unless you turn on its Capture mechanism before logging on.

TeleFinder also supports E-mail and conferences on BBSs. The E-mail portion uses a standard Mac interface that includes an address book of correspondents and their electronic addresses. To send mail, you drop it into an out-box icon on the TeleFinder desktop.

For a program to exist in today's telecommunications world, solid support for the major text-based on-line services is a must. Unfortunately, although TeleFinder Pro's makers have clearly invested heavily in the program's graphical interface, they've shortchanged its terminal-emulation capabilities.

Spider Island Software, 4790 Irvine Blvd., Suite 105-347, Irvine, CA 92720; (714) 730-5785. Version 1.02. $79.95.

— Ben Templin



Tesserae

★★★★½

Inline Design enjoys a reputation for clever strategy games that torture as well as delight. Its latest brainteaser, Tesserae, has a simple premise: Clear the game board of colored tiles by jumping one over another in as few moves as possible. Simple in theory but deceptively hard to master.

Tesserae tiles come in three flavors: primary, secondary, and tertiary. Primary tiles are red, yellow, or blue (primary colors). Secondary tiles are formed from various blends of primary colors (orange and green, for example). Tertiary tiles are gray. Color is key to Tesserae and governs which tiles you can jump and where you can land. You can also play Tesserae in black-and-white mode, in which patterns are stamped onto the tiles.

Tiles can jump only other tiles that share color components, except for the primaries, which can jump other primaries. For instance, you must use either a blue, yellow, or green tile to jump another green tile. When you jump a tile, you subtract color from it. So if a blue tile jumps a green, the blue component of the secondary is eliminated, leaving a yellow tile behind. To eliminate the yellow tile altogether (which is the idea), you jump it with any other primary tile. Secondary tiles can jump identical secondaries or the tertiary tiles, but tertiaries can jump only tertiaries. Sometimes one tile jumps and lands on another, in which case the color of the jumping tile is added to the tile on which it lands.

Tesserae's *real* challenges lie in making sure there are no stranded tiles on the board and in shuffling tiles to draw the secondary and tertiary tiles out of the game's nooks and crannies. As in a chess game, you must often devise strategies that take several moves to complete.

Tesserae is absolutely gorgeous in color (it's optimized for 256-color mode). If you manage to reduce a mosaic to only one remaining tile, you're treated to a satisfying pyrotechnic display. The game's sound effects are also excellent, especially when tiles drop to set up the board (bam! bam! bam!).

Tesserae works on any Mac from the Plus up, is System 7-compatible, and automatically configures itself to match the colors (or lack thereof) available on-screen. The game has no copy protection (a nice touch) and no paper documentation — a clever on-line manual provides interactive instructions.

Inline Design, 5 W. Mountain Road, Sharon, CT 06069; (203) 364-0063. Version 1.04. $49.95.

— Aileen Abernathy



DynoPage

★★★★

Nothing comes close to DynoPage for versatile printing. This utility prints documents in enlarged or reduced sizes, including minipages for personal organizers and appointment books. It can also print on both sides of a page. No other program, printing utility, or add-on product prints double-sided output as well as or as quickly as DynoPage.

You install DynoPage as a control panel and turn the utility on and off or activate it for your next print job only. To use the program, you set the basic size and layout parameters for your document in the DynoPage dialog box, which appears once you've selected and closed your application's Page Setup dialog box. Once DynoPage's Preview/Print dialog box has appeared (it follows on the heels of your application's standard Print dialog box), you're ready to print. Although this sounds complex, it's actually quite easy and straightforward.

With DynoPage, printing takes a while to begin, especially at reduced type sizes, but the complete process often runs at least as fast as regular print jobs. There is a performance hitch, however, when you print a selected group of pages. No matter how small the selection, even if it's the first page only, DynoPage preps and paginates the whole job. As a result, printing selected ranges is always slow.

DynoPage generally handles text quite well, but it has a few limitations. Reduced-

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RAM	2 to 4 MB	2 to 8 MB	4 to 14 MB	2 to 8 MB	4 to 14 MB	4 to 8 MB
Upgradeable CPU & Hard Disk	Yes	No	Yes	No	Yes	No
Silicon Disk Memory (RAM)	0 to 12 MB	0 to 6 MB	0 to 60 MB	0 to 6 MB	0 to 60 MB	0 to 6 MB
Hard Disk Drive	20, 40, 80, or 120 MB	20 MB	20, 40, 80, or 120 MB	20 or 40 MB	40, 80 or 120 MB	40 MB
Math Coprocessor	None	None	Optional 68881	None	Optional 68881	68882
Internal Floppy Drive	1.4 MB SuperDrive*	None	1.4 MB SuperDrive*	1.4 MB SuperDrive™	1.4 MB SuperDrive*	1.4 MB SuperDrive
Virtual Memory Capability	None	None	None	Standard	Standard	Standard
Display	10" Dia., 640 x 480	9" Dia., 640 x 400	10" Dia., 640 x 480	10" Dia., 640 x 400	10" Dia., 640 x 480	10" Dia., 640 x 400

* The 1.4 MB Floppy Disk Drive is SuperDrive-equivalent. Technical specifications subject to change without notice. The Outbound name, logo and TrackBar are trademarks of Outbound Systems, Inc. Apple, Macintosh and Mac are registered trademarks of Apple Computer, Inc. PowerBook and Apple SuperDrive are trademarks of Apple Computer, Inc. All other brand and product names mentioned are trademarks or registered trademarks of their respective holders.

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size printing suffers from imperfect line spacing; it's adequate for printing drafts and personal copies, but you'll want better quality for your résumé or for letters to your customers. The program comes with more than 50 templates that determine the size and number of miniaturized pages that can fit on a single DynoPage sheet. The templates include almost every address-book format as well as calendars and expense sheets. You have to use ResEdit to edit the templates, however, which means that the editing process is not exactly straightforward. Portfolio Systems has promised a forms editor in the next version of DynoPage. A limited number of pagination schemes is provided, and the schemes determine the order in which your reduced pages will appear on the DynoPage sheets.

The DynoPage manual is good; the Quick Start section is mandatory reading, because of the number of controls that must be set, including page layout, type size, and double- or single-sided printing. The package also includes a hefty share of personal-organizer laser paper.

Despite some minor shortcomings, DynoPage is an extremely practical, useful printing utility that can save you lots of paper.

Portfolio Systems, 21 E. Market Street, Rhinebeck, NY 12572; (914) 876-7744. Version 1.0. $125.

— Steven Bobker



AgentDA

★★★½

AgentDA is an appointment-and-reminder utility that handles most scheduling tasks quite well. The program also provides a Find function, a feature generally missing from other appointment programs but useful for locating specific appointments. If your scheduling requires that you use alarms frequently, however, you should look elsewhere. AgentDA's alarm is not on a par with that of other programs in its class.

AgentDA's greatest strength is that it makes getting an overview of appointment schedules easy. It has two main displays. In the calendar view, you can include a detailed description of each scheduled appointment, including time and duration. In contrast, the calendar views of competing programs indicate only that appointments have been scheduled on specific dates. To see the details associated with appointments in these programs, you must open a separate dialog box.

AgentDA's time view shows appointments aligned with the appropriate times in a column that's arranged in half-hour intervals to mimic the appearance of an appointment diary.

Either view lets you select the number of days to display. With one or two mouse clicks, you can shift from a single-day view to a view that shows as many as 35 days. Whichever view you select, clicking on any date toggles between that view and the single-day view. To move to a date that's distant from the present day, you simply select it from a pop-up scrollable minicalendar.

You set appointments in a dialog box that opens when you double-click on their date. Once you've set appointments, you can move them into the calendar view simply by dragging them to a new date.

You can set reminder alarms with AgentDA, but this function is the program's greatest weakness. AgentDA version 2.0 has added a "snooze alarm" capability so that you can request reminders to reappear later on. Beyond that, when a reminder appears on-screen, there's only one thing you can do with it after you've read it: Delete it from the screen. You can't mark the reminder as completed or remove it from the agenda file and trash it. To accomplish any of these tasks, you must reopen AgentDA. The program can't set up recurring appointments or maintain running archives of completed tasks.

If you're looking for an exceptionally convenient way to display appointments, AgentDA is worth a look. But if you frequently need alarm reminders, you'll do better with Alarming Events, Smart Alarms, or CalenDAr.

Team Building Technologies, 836 Bloomfield Avenue, Montreal, Quebec H2V 3S6, Canada; (514) 278-3010. Version 2.0. $119.

— Ted Landau



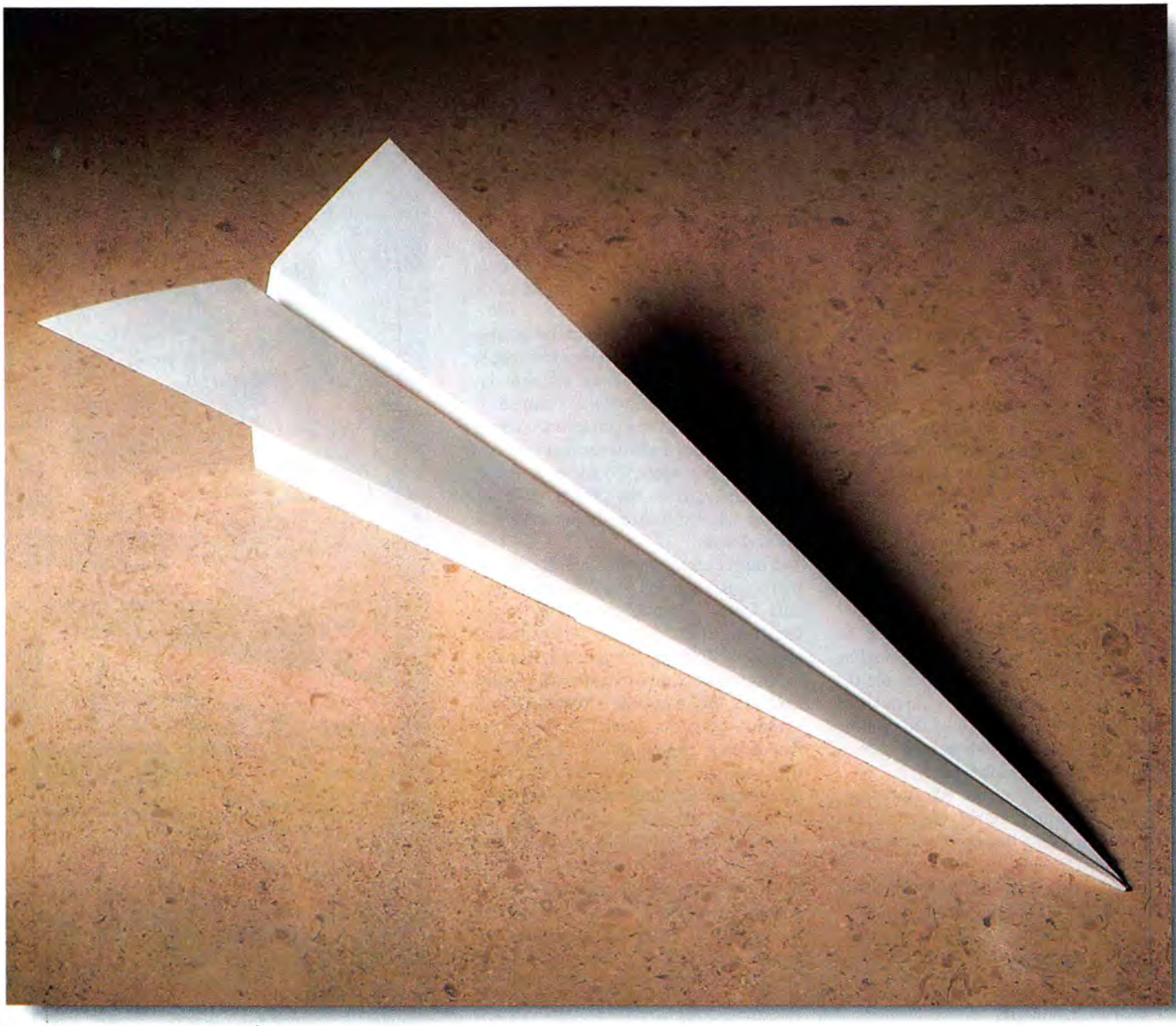
FolderBolt

★★★★

If you're looking for a straightforward, easy-to-use solution to the problem of computer security, look no further than FolderBolt, a program that lets you restrict access to programs and data by "bolting" designated folders.

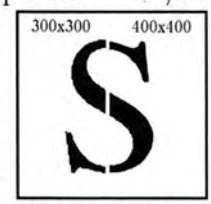
FolderBolt's control panel lets you assign one of three levels of security to a





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The new LZR 1560 from Dataproducts is a complete departure from ordinary laser printers. At 15 ppm, it's not only faster than most office laser printers, it can also deliver output up to 11″ x 17″. Which means it can print spreadsheets, illustrations—any two-page layout—in the time it normally takes to process a letter-size page.



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But in addition to doing its job faster, we've designed the LZR 1560 to do a number of things better.

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11″ x 17″ Laser Printer Market Snapshot

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LaserMaster 400XL	400x400	20 None	Microsoft TrueImage	$9,995
QMS PS2210	300x300	20 Motorola 68020	Adobe PostScript	$9,995
Varityper VT600W	600x600	7 Motorola 68020	Adobe PostScript	$16,995
DEC PrintServer 20	300x300	20 N/A	Adobe PostScript	$25,247
ATI LC6020	300x300	20 Motorola 68020	ATI LaserDrive & PostScript	$15,995

Sources: Dataquest and Dataproducts Corporation, 1991

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folder: password-protected; read-only, which designates that a folder can be opened and the contents read but not changed or moved without a password; and drop-only, which lets files be placed in a folder but not opened without a password.

Locking and unlocking folders is as easy as executing any basic function on the Mac. You open the control panel, click on the Lock a Folder button, select a folder from a dialog box, choose the level of protection, and assign a password. To unlock your folders, you can use FolderBolt's control panel (which only you have access to) or you can unlock password-protected and drop-only folders directly just by double-clicking on them and entering the password.

FolderBolt lets you create sets of folders that you can lock and unlock with a single password. This is especially useful for read-only folders used by workgroups. As with locking and unlocking single folders, creating sets is extremely easy.

FolderBolt Administrator is an application that lets users or network administrators override bolted folders individually or by volume. You use the Administrator application to establish password protection for the control panel and the Administrator program itself as well as to access the on-line help system; set startup, shutdown, password, and other operating guidelines; and access the activity log. The activity log lists all successful and unsuccessful attempts to open locked folders. It can also note startup and shutdown times. This way, network administrators can monitor any illegal access.

Like the control panel, Administrator is straightforward and self-explanatory. Most intermediate and advanced users probably won't even need to consult the concise 80-page manual, but for those who need it, the manual is well written and organized.

FolderBolt is System 7-compatible and 32-bit clean, and it supports virtual memory. It fills an important niche by providing a strong level of protection that's easy to set up and maintain. Although it goes beyond total-lockout programs such as DiskLock, it doesn't add encryption and other complex high-end features. For most individual and office situations, FolderBolt is likely all you'll need to protect your files from prying eyes.

Kent Marsh Ltd., 1200 Post Oak Blvd., Suite 210, Houston, TX 77056; (713) 623-8618. Version 1.0.2. $129.95.

— Tom Petaccia

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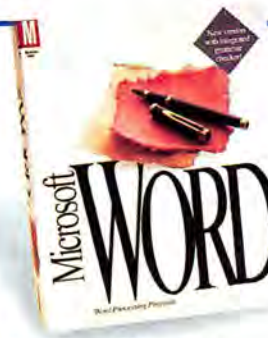
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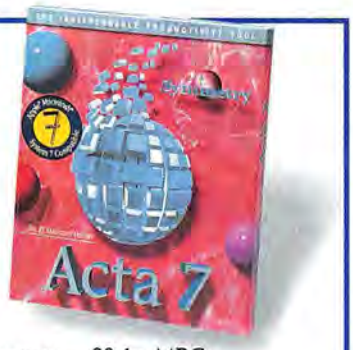
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3507 ❼Aldus Super 3D 2.5 325.
7467 ❼Aldus PrePrint 1.51. 325.
4751 ❼Aldus Persuasion 2.0 325.
1330 ❼Aldus FreeHand 3.1 *(Jan. '92)* 395.
7088 ❼Aldus PageMaker 4.2 *(Jan. '92)* 495.
8054 ❼Aldus Design Team *(best buy, includes PageMaker, FreeHand & PrePrint)* 859.



Adobe Systems

6644 ❼ *Adobe Photoshop 2.0*–1991 *MacUser*'s Editors' Choice Award Nominee for Best Image-Editing Program $549.
4145 ❼ *Adobe Premiere 1.0*. 309.
8171 ❼ *Adobe Illustrator 3.2 (w/ATM)* 369.

380U

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Delivery is no



Altsys
1983 ❼ *EPS Exchange 2.0*–Now Goes Both Ways! Extends the functionality of Aldus FreeHand 3.0 by providing the ability to open as well as generate Adobe Illustrator 88 and Adobe Illustrator 3.0 files. $89.

Altsys
9806 ❼ Metamorphosis Pro 2.03 89.
1983 ❼ EPS Exchange 2.0 *(Jan. '92)* 89.
1195 ❼ Fontographer 3.3 265.
★Ares Software ... 30 day MBG
8878 ❼ FontMonger 1.05 62.
★Baseline Publishing ... 30 day MBG
8055 ❼ Screenshot 1.2 34.
7784 ❼ Color MacCheese 2.0.8 56.
7828 Exposure Pro 1.0.2 78.
Bitstream
9428 ❼ True Type Fonts 1 or 9429 Fonts 2 . *ea.* 59.
1591 ❼ True Type Fonts 3 or 1595 Fonts 4 . *ea.* 98.
Broderbund Software
3572 ❼ Kid Pix 1.2 34.
1427 ❼ The Print Shop 1.3.2 35.
6281 ❼ TypeStyler 2.0 *(with ATM, Jan. '92)* . . . 127.
★Casady & Greene ... 30 day MBG
8879 ❼ Fluent Font Library 4.05 99.
1945 ❼ True Type Starter Set 57.
★Claris ... 30 day MBG
1123 ❼ MacPaint 2.0 88.
2518 ❼ MacDraw Pro 1.0 279.
8007 ❼ Claris CAD 2.0 629.
Custom Applications
8037 ❼ Freedom of Press Light 3.01 *(17 fonts)* . 55.
★DeltaPoint ... 60 day MBG
3558 ❼ DeltaGraph Pro 209.



★Deneba Software ... 30 day MBG
3227 ❼ *Canvas 3.0*–1991 *MacUser*'s Editors' Choice Award Nominee for Best Drawing Program. Features Bezier font outlines, professional word-processor-like text capabilities, object blending, a freehand Bezier curve tool, etc. $249.

★Deneba Software ... 30 day MBG
3227 ❼ Canvas 3.0 $249.
★Expert Software ... 30 day MBG
4870 ❼ Expert Color Paint 1.0 29.
★Foundation Publishing ... 60 day MBG
6728 ❼ Comic Strip Factory 1.6 36.
IDD/Innovative Data Design
2417 ❼ MacDraft 2.1 279.
4707 ❼ Dreams 1.10 *special* 349.
★Letraset ... 30 day MBG
2619 ❼ ImageStudio 1.5 139.
4709 ❼ LetraStudio 2.0 *(Jan. '92)* 139.
6300 ❼ FontStudio 2.0 359.
6301 ❼ ColorStudio 1.5 599.
★Linguist's Software ... 60 day MBG
Over 100 language fonts call
2636 MacKanji 6.0.5 79.
2638 LaserCyrillic 1.0 99.
★MacroMind•Paracomp ... 30 day MBG
3440 ❼ QuickPICS 1.0 103.
3148 ❼ Magic 1.0 275.
5028 ❼ ModelShop II 2.0 619.
❼ SwivelArt *(Map & Viewpoint art)* . . *ea.* 175.
7441 ❼ Swivel 3D Professional 2.0 479.
3450 ❼ SwivelMan 1.0 619.
★Mainstay ... 30 day MBG
9798 ❼ Capture 4.0 82.



★ASD Software ... 30 day MBG
MaccessCard Reader combined with FileGuard 2.7 secures your Mac against unauthorized users.
7085 ❼ *FileGuard 2.7 (1 user)* $139.
9440 *MaccessCard Reader (reqs. FileGuard)* . . 299.
9439 ❼ *MaccessCard/FileGuard (1) Bundle* . . 399.

★MicroFrontier ... 30 day MBG
3013 ❼ Color It! 1.0 75.
7886 Enhance 2.0 235.
★MicroMaps ... 30 day MBG
7556 ❼ MapArt *(PICT)* or 7555 *(EPS)* *ea.* 89.
★Microsoft ... 30 day MBG
2878 ❼ PowerPoint 2.01E 245.
★Monotype Typography ... 30 day MBG
❼ Monotype Imprints-TrueType *ea.* 22.
Classic Fonts *(full line available)* call
Postcraft International
2210 ❼ Effects Specialist 1.04 95.
❼ Layouts for PageMaker, ReadySetGo, & QuarkXPress *ea.* 69.
❼ Layouts: Stationery or Flyers *ea.* 45.
Quark
7612 ❼ QuarkXPress 3.1 *(Jan. '92)* 569.
Solutions, Inc.
3448 ❼ SmartScrap & The Clipper 2.1 56.
★Specular International ... 30 day MBG
4962 ❼ Infini-D 1.1 649.
★Spinnaker ... 30 day MBG
3530 Certificate Maker 2.02 22.
Strata
7773 ❼ Stratavision 3D 2.0 629.
★SuperMac Technology ... 60 day MBG
3380 ❼ PixelPaint 2.1 . . 149. 5625 ❼ Pro . . 459.



After Hours Software
1352 ❼ *TouchBASE 2.0*–Multi-user database designed to keep track of personal and business contacts. It's a handy desk accessory that can print envelopes, labels, address books, fax cover sheets, reports and much more. $79.

3G Graphics
3942 ❼ Images with Impact: Graphics 1 49.
6379 ❼ Accents & Borders I 64.
4583 ❼ Business 1 . . 64. 2003 ❼ People 1 . . 94.
★Timeworks ... 30 day MBG
7115 ❼ Publish It! *Easy* 2.12 with File-It! 154.
★T/Maker ... 30 day MBG
Full line available.
❼ ClickArt *(bitmapped)* *ea.* 32.
❼ ClickArt *(EPS format)* *ea.* 82.
1292 Color Graphics Presentation 1.0 109.
Virtus Corporation ... 30 day MBG
4488 ❼ WalkThrough 1.03 249.
★Visual Business Sys. ... 30 day MBG
9867 ❼ GraphMaster 1.1 189.

PROGRAMMING
UTILITIES, HYPERCARD, SECURITY

★Abbott Systems ... 30 day MBG
2515 ❼ Calc + 1.0 39.
5236 ❼ CanOpener 1.1 62.
★Advanced Software ... 30 day MBG
8051 ❼ Intouch 1.1 39. 9986 Network *(3-Pak)* 112.
2808 ❼ QuickTools 1.0 45.
After Hours Software
1352 ❼ TouchBASE 2.0 79.
★Aladdin Systems ... 30 day MBG
6169 ❼ Shortcut 1.5 45.
6740 ❼ StuffIt Deluxe 3.0 *(Feb. '92)* 62.
★Aldus ... 30 day MBG
5100 ❼ Aldus SuperCard 1.6 *(Jan. '92)* 195.
★ALSoft ... 30 day MBG
9808 ❼ MasterJuggler 1.57 25.
9807 ❼ DiskExpress II 2.10 49.
5204 ❼ ALSoft Power Utilities *(Feb. '92)* 69.
★Alysis Software ... 30 day MBG
2687 ❼ SuperDisk! 2.0 49.
Apple Computer
1074 ❼ System 7 *(with free PCTV video)* 99.
★ASD Software ... 30 day MBG
9440 MaccessCard Reader *(reqs. FileGuard)* . 299.
9439 ❼ MaccessCard/FileGuard *(1)* Bundle . . 399.
7085 ❼ FileGuard 2.7 *(1 user)* 139.
7422 ❼ *(5 user)* . . . 489. 7423 ❼ *(10 user)* . . . 799.
5313 ❼ Active Memory 2.0 *(1 user)* 125.
5314 ❼ *(5 user)* . . . 315. 5315 ❼ *(10 user)* . . . 625.
★Baseline Publishing ... 30 day MBG
7783 ❼ INIT Manager 1.1 34.
3114 ❼ INIT Info 39.
★Berkeley Systems ... 30 day MBG
5737 ❼ After Dark 2.0V 28.
2198 ❼ More After Dark *(M.A.D)* 23.

laughing matter.



★Timeworks ... 30 day MBG

7115 ❼ *Publish It! Easy 2.12 with File-It!*–This all-in-one desktop publisher combines ease of use with advanced features that make page layout a breeze. Now includes *the new* File-It!, a built-in database and mail-merge program! $154.

2196 ❼After Dark & M.A.D. Bundle 42.
1541 ❼Stepping Out II 2.02 49.

Bright Star Technology

2614 ❼At Your Service 1.0 30.
3994 ❼Catalog of Actors *(six)* 55.

★Casady & Greene ... 30 day MBG

2269 ❼QuickDEX 2.3 .. 22. 2528 *(5 Pak)* .. 99.
4485 ❼Crash Barrier 1.0 45.

★CE Software ... 60 day MBG

1727 ❼CalendarMaker 3.0.1 31.
6278 ❼DiskTop 4.01 or 3376 ❼Tiles 1.0 .. *ea.* 63.
7518 ❼Alarming Events 1.03 84.
8024 ❼QuickKeys² 2.1 94.

★Central Point ... 30 day MBG

5041 ❼Mac Tools Deluxe 1.2 79.

★Claris ... 30 day MBG

8734 ❼HyperCard Development Kit 2.1 139.

★Connectix ... 30 day MBG

7830 ❼Maxima 2.0.1 45.
6647 ❼HandOff II 2.2.1 56.

★Cyan ... 30 day MBG

2715 ❼Peacock 2.0 *(for HyperCard)* 43.

★Dantz Development ... 30 day MBG

3393 ❼DiskFit Pro 1.0 74.
5255 ❼Retrospect 1.3A 147.
7945 ❼Retrospect Remote 1.3 264.
7946 ❼Remote *(10 Pak)* . 147. 3112 *(50 Pak)* . 649.

Dubl-Click Software

6653 ❼MenuFonts 4.0 44.
7974 ❼ClickChange 1.05.2 56.
1824 ❼Calculator Construction Kit 2.09.6 62.

★ElseWare Corp. ... 30 day MBG

4871 ❼Checklist 2.0 89.
1507 Bar Code Kit 1.0d 135.

★Fifth Generation ... 30 day MBG

4287 ❼PYRO! 4.01 27.
3955 ❼Suitcase II 2.0 53.
8286 SuperLaserSpool 2.02 100.
5178 ❼FastBack Plus or 5725 ❼DiskLock *ea.* 127.

★FWB, Inc. ... 30 day MBG

2999 ❼Hard Disk Toolkit 1.0 125.

★ICOM Simulations ... 30 day MBG

3731 ❼OnCue II 2.0 56.

★Insight Development ... 30 day MBG

6171 ❼MacPrint 1.3 93.
1296 ❼Mosaic 1.0 *(3 user)* 249.

★JAM Software USA ... 30 day MBG

6089 ❼Smart Alarms with Appt. Diary 3.0.7 .. $63.

★Kensington ... 30 day MBG

9301 ❼PassProof *(right)* or 9300 *(left)* *ea.* 65.
2011 ❼PassProof Classic or 1632 IIsi *ea.* 65.

★Kent Marsh Ltd. ... 30 day MBG

9513 ❼FolderBolt 1.02 73.
2591 ❼The NightWatch 1.03 84.
9779 ❼GuardCard SE or 9951 SE/30 ... *ea.* 106.

★Kiwi Software ... 60 day MBG

6267 ❼KiwiENVELOPES! 3.1.3 32.
3518 ❼Kiwi POWER WINDOWS 50.

★Magic Software ... 30 day MBG

7268 ❼POWERicons or 7267 ❼AutoSave II *ea.* 26.
7270 ❼Backmatic 2.01 50.

★Microcom ... 30 day MBG

8562 ❼Complete Undelete 1.1 48.
4803 ❼Virex 3.5 57.
8561 ❼911 Utilities or 2462 ❼Citadel w/Shredder 89.

MicroMat Computer Systems

2810 ❼MacEKG 1.0.9 63.

★Microseeds Pub. ... 60 day MBG

7068 ❼INITPicker 2.02 34.
2913 ❼Redux, 7116 ❼Rival or 2936 ❼HAM *ea.* 49.

★Microsoft ... 30 day MBG

4471 QuickBasic 1.0 64.



★Microcom ... 30 day MBG

Complete disk and file recovery and protection.

8561 ❼ *911 Utilities 1.0* $89.
4803 ❼ *Virex 3.5* 57.
2462 ❼ *Citadel with Shredder 1.0* 89.
8562 ❼ *Complete Undelete 1.1* 48.

★Nine to Five Software ... 30 day MBG

9767 ❼Reports 2.1 94.

★Now Software ... 30 day MBG

6925 ❼Now Utilities 3.1 84.

★ON Technology ... 1 year MBG

6385 ❼On Location 2.0 75.
9801 ❼Meeting Maker *(5)* .309. 9800 *(10)* .. 549.
2570 ❼Instant Update *(2)* ... 309. 2571 *(5)* .. 619.

★Palomar Software ... 30 day MBG

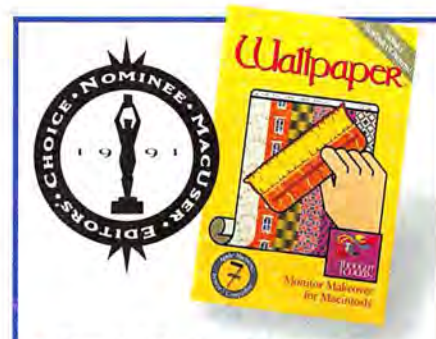
8210 ❼PLOTTERgeist 2.0 249.

★Salient Software ... 30 day MBG

7404 ❼DiskDoubler 3.7 49.
4838 ❼AutoDoubler 1.0 49.

★Symantec ... 30 day MBG

5176 ❼Symantec AntiVirus for Mac *(SAM)* 66.
5724 ❼Symantec Utilities for Mac *(SUM II)* 96.
6748 ❼Norton Utilities for the Mac 1.1 87.
3598 ❼Norton Utilities & SAM Bundle 118.
3421 ❼THINK Pascal 165. 2688 ❼THINK C 199.
9957 ❼THINK Reference 1.0 69.



★Thought I Could ... 30 day MBG

4843 ❼ *Wallpaper 1.0*–It's fun! Create, edit, save, and install large, colorful/B&W desktop patterns. Hundreds of outstanding patterns included, make your own with Wallpaper's tools, or import. Randomize too! $34.

Teknosys

5203 ❼HELP! 1.0 89.

★TGS Systems ... 60 day MBG

6667 ❼Prograph 2.5 309.

★Thought I Could ... 30 day MBG

4843 ❼Wallpaper 1.0 34.

★Visionary Software ... 30 day MBG

3888 ❼Synchronicity 3.0 35.
3887 ❼First Things First 2.0 *(Feb. '92)* 41.

★Wolfram Research ... 30 day MBG

8273 ❼Mathematica Enhanced 2.0 789.

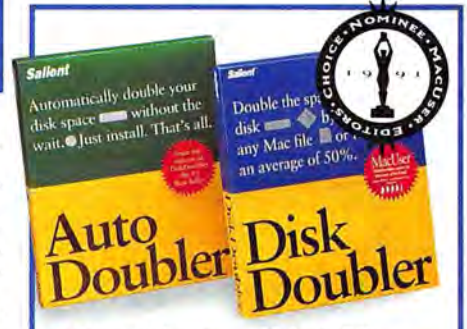
CD-ROM

Adobe Systems

8794 ❼Adobe Type On Call CD/ATM 47.

CD Technology

2321 CD-ROM Caddy 11. 2533 *(5)* 49.
8057 Porta Drive CD-ROM 599.
4140 ❼Multimedia HANDisc 75.



★Salient Software ... 30 day MBG

4838 ❼ *AutoDoubler 1.0*–New! Automatically double the space on your drive $49.
7404 ❼ *DiskDoubler 3.7*–Award winner. Compress files for telecommunication, backups, or transfer to floppies. Can use w/AutoDoubler 49.

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★Cyan ... 30 day MBG
2717 ❼Cosmic Osmo 1.1 *(CD-ROM)* $37.
★Discovery Systems ... 60 day MBG
9967 ❼Nautilus *(subscription, CD-ROM)* 20.
9965 ❼Sherlock Holmes *(CD-ROM)* 26.
9966 ❼Shakespeare on Disc *(CD-ROM)* 26.
9968 ❼Birds of North America *(CD-ROM)* 52.
1874 ❼Mammals of No. America *(CD-ROM)* 52.
Dubl-Click
9944 The WetSet CD *(approx. 7000 images)* 218.
★Everex ... 30 day MBG
1875 Metro CD-ROM Drive 1.3 469.
★Highlighted Data ... 30 day MBG
7771 ❼Webster's Dictionary *(CD-ROM)* 159.
★HyperGlot ... 30 day MBG
7473 ❼Learn To Speak French *(CD-ROM)* 62.
7829 ❼Learn To Speak Spanish *(CD-ROM)* 62.
2615 ❼Lingua ROM II *(3-CD Set)* 649.
★ICOM Simulations ... 30 day MBG
3717 ❼Sherlock Holmes *(CD-ROM)* 39.
★Microsoft ... 30 day MBG
6382 ❼The Microsoft Office *(CD-ROM)* 479.
NEC
6625 Clip-Art 3D *(2500 full-color images)* 246.
6636 Image Gallery *(2800 line art)* 246.
9441 CDR36 CD-ROM Portable Drive 399.
2595 General Reference CD-ROM Bundle *(includes CDR36, kit & 7 titles)* 529.
5161 CDR73 CD-ROM Drive 599.



Pixar
3566 ❼ *Showplace & MacRenderMan CD-ROM*–Complete with: Showplace & MacRenderMan applications, access to on-line documentation, and a gallery of images and animations . $449.
1596 ❼ *Showplace & MacRenderMan Bundle* 649.

★Penton Overseas ... 30 day MBG
2611 ❼Vocabulearn/ce 2.0 Spanish 1 CD 69.
2610 ❼Vocabulearn/ce 2.0 French 1 CD 69.
Pixar
3566 ❼Showplace & RenderMan CD-ROM 449.
Software Toolworks
3915 Grolier Encyclopedia *(CD-ROM)* 249.
4397 Time Table History *(CD-ROM)* 57.
★Voyager ... 30 day MBG
3921 ❼Mozart Dissonant Quartet CD 39.
3917 ❼A Silly, Noisy House CD 39.
3919 ❼AmandaStories CD *(Jan. '92)* 39.
3316 ❼Exotic Japan 1.0 *(CD-ROM)* 65.

VIDEO & SOUND
MONITORS, MUSIC, ANIMATION

★Ars Nova ... 30 day MBG
1215 ❼Practica Musica 2.2 66.
★Bogas Productions ... 60 day MBG
6135 Super Studio Session with Music Library 99.
Coda Music Systems
5604 ❼Finale 2.6.1 549.
8188 ❼MusicProse 2.1 299.



★Sound Source ... 30 day MBG
3547 ❼ *Star Trek: The Logical Collection*–Exciting new Star Trek sounds. Incl. everyone's favorite dialog, sound effects and music cues $29.
3607 ❼ *Star Trek: The Final Frontier*–Features sounds for the hard-core Trekkie. 29.

Full Logic Studios
1163 ❼Mac-Sound *(241 great sound effects)* 79.
★MacroMind•Paracomp ... 30 day MBG
9353 ❼MacroMind MediaMaker 1.2 479.
6159 ❼MacroMind Accelerator 3.0 135.
5087 ❼MacroMind Director 3.0 689.
2246 ❼MacroMind Three-D 1.0 1029.
2199 MacRecorder Sound System 2.0.5 call
Mass Microsystems
2592 QuickImage 24 289.
Rival Monochrome Systems. *ea.* 1199.
★Nutmeg Systems ... 30 day MBG
❼19" for SE, SE/30, II, IIsi. *ea.* 995.
❼19" for GrayScale SE/30, II, IIsi *ea.* 1295.
❼20" Color System: SE/30, II, IIsi. *ea.* 2595.
Passport Designs
8253 ❼TRAX 2.2 57.
3117 ❼Master Tracks PRO 4 4.5 315.
8250 ❼Encore 2.07 379.
3115 ❼MIDI Interface. 79.
PCTV
2244 System 7 Video with Lon Poole *(VHS)* 9.
2245 System 7 Video & Lon's Book 25.
Pixar
1596 ❼ShowPlace & MacRenderMan Bundle 649.
RasterOps
8526 Video Expander 499.
3224 Expresso Slide Scanner 699.
9784 RasterOps 24SX. 649. 8944 24STV. 1249.



★TIMESLIPS ... 30 day MBG
2986 ❼ *Timeslips III 2.1*–New version! Fast, easy, accurate time and billing for service professionals $194.
8939 ❼ *Accounting Link 1.0B*–Now links with general ledger accounting programs 52.

Software Toolworks
5201 The Miracle *(piano teacher) (Feb. '92)* $349.
★Sound Source ... 30 day MBG
3547 ❼Star Trek: The Logical Collection 29.
3607 ❼Star Trek: The Final Frontier 29.
4920 ❼Star Trek: The Bundle *(I gotta have both!)* 49.
★SuperMac Technology ... 60 day MBG
4139 Monochrome Card *(NuBus only)* 357.
4134 19" Gray-Scale/Mono Display 999.
1805 19" SuperMatch Color Display 1799.
1813 Color Calibrator 549.
1877 Spectrum/8LC or 2026 S/8si *ea.* 536.
1844 Spectrum/8 Series III 536.
1851 Spectrum/24 Series III 1525.
2330 Spectrum/8-24 PDQ or 2231 PDQsi *ea.* 899.
4122 VideoSpigot LC or 4114 IIsi *(Jan. '92) ea.* 447.
4164 VideoSpigot *(for NuBus)* 536.
★Symmetry ... 30 day MBG
8172 ❼Mariah 1.0 93.
★Voyager ... 30 day MBG
9322 ❼Voyager Videostack 2.2 65.
9328 ❼Voyager CD Audiostack 65.
9326 ❼Beethoven: Symphony No. 9 2.0. 65.
9327 ❼Stravinsky: The Rite of Spring 2.0 65.

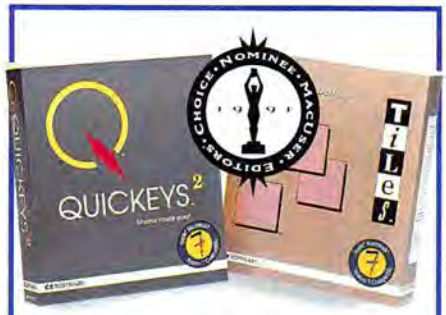


Software Toolworks
5201 *The Miracle (piano teacher)*–Use the power of your Macintosh to help you learn to play the piano. Includes a 49 standard size, velocity sensitive keyboard, stereo headphones, and foot pedal plus a whole lot more $349.

LEARN & PLAY
FOREIGN LANGUAGES, TRAINING, GAMES

Accolade
1423 Hard Ball II or 8217 Ishido *ea.* 31.
8220 ❼Jack Nicklaus Golf 34.
★Aldus ... 30 day MBG
3503 ❼Dark Castle. 34.
3502 ❼Beyond Dark Castle 34.
★Baseline Publishing ... 30 day MBG
7785 ❼Talking Moose 4.0.2 23.
★Beacon Technology ... 30 day MBG
4967 ❼HyperBible *(KJV)* or 4968 *(NIV)* . . *ea.* 125.
Broderbund Software
4314 ❼Type! 1.0. 18.
6516 ❼The Playroom 2.0 *(CP) (color)*. 29.
❼Carmen Sandiego Series *(CP)* *ea.* 29.
6384 ❼PlayMaker Football *(color) (Jan. '92)*. . . 29.
5317 ❼Spelunx and the Caves of Mr. Suedo . . 29.
9804 ❼RoboSport 35.
8195 ❼BannerMania 35.
3562 ❼Patton Strikes Back. 35.
3559 ❼SimAnt 35.
5318 ❼Nigel's World 35.
8266 ❼SimEarth 1.0. 40.
4966 SimCity *(CP)*. . . 29. 5871 ❼Supreme. . . 47.
★Carina Software ... 30 day MBG
5726 ❼Voyager 1.2 87.

Airborne Express.



★CE Software ... 60 day MBG

3376 ❼ *Tiles 1.0*–1991 *MacUser*'s Editors' Choice Nominee for Best Utility. Simplifies your Mac workspace and automates your work. . . . $63.

8024 ❼ *QuicKeys² 2.1*–1991 *MacUser*'s Editors' Choice Nominee for Best Utility 94.

★Casady & Greene ... 30 day MBG

4119 ❼Crystal Quest with Critter Editor 2.2x. . . 29.
7495 ❼Mission Starlight or 7498 ❼Sky Shadow 29.
3343 ❼Aqua Blooper Piper 1.0 29.
3342 ❼Glider 4.0 29.
4960 ❼Fun Bundle *(includes Crystal Quest w/CE, Sky Shadow & Mission Starlight)* 59.

★Centron Software ... 30 day MBG

2707 ❼Puzzle Master 26.
8525 ❼Casino Master *(B&W)* 41. 8524 *(Color)* 45.

★Davidson & Assoc. ... 30 day MBG

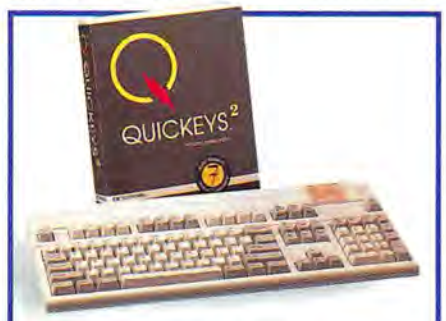
3922 ❼Talking Spell It Plus 29.
6128 ❼MathBlaster Mystery 29.
2574 ❼MathBlaster Plus 35.
8278 ❼Alge-Blaster Plus 35.
3923 ❼Personal Trainer SAT 35.

★Deadly Games ... 30 day MBG

2811 ❼Bomber or 3460 ❼Battle of Britain II *ea.* 31.

EARTHQUEST

3118 ❼EARTHQUEST Ecology 1.0 34.
8050 ❼EARTHQUEST 2.0 39.



★Datadesk ... 30 day MBG

9830 ❼ *MAC101E Keyboard*–Latest version featuring function keys, click-click tactile sensation, six screen control keys, numeric keypad & isolated Esc & Reset keys $129.

2384 ❼ *MAC101E Keyboard with QuicKeys²* 149.

Electronic Arts

6716 Pipe Dream 1.2 $17.
1303 ❼Loom 1.0 29.
8194 Armor Alley 1.1 32.
1907 ❼PGA Golf or 2963 ❼Starflight II 1.0 *ea.* 39.
3385 ❼Secret of the Silver Blades 39.
8643 ❼Harpoon. 39.
2962 ❼Harpoon Challenger Pak 59.

FTL/Software Heaven

1555 OIDS 1.2 25.

★Great Wave ... 30 day MBG

2276 ❼Kid's Time 1.3 or 5642 ❼Kid's Math 1.1 25.
2270 ❼American Discovery 3.0 25.
4334 ❼NumberMaze . . 25. 8527 ❼*(Color)* . . 35.
8044 ❼NM Decimals & Fractions *(Color)* 35.
1517 ❼ReadingMaze . . 25. 1513 ❼*(Color)* . . 35.

★HyperGlot Software ... 30 day MBG

❼Word Torture 4.0-Beginner to Advanced *(Span., Fren., Germ., Ital. & Rus.)* . . . *ea.* 35.
❼Pronunciation Tutor - Beginner *(Span., Fren.)* . *ea.* 35. *(Germ., Chin.)*. . 39.
❼Verb Tutor - Intermediate *(Spanish, French, German)* *ea.* 39.
❼Tense Tutor 2.0 *(Spanish, French, German, Italian)* . . . *ea.* 39.
❼Survival Manual *(Span., Fren., Germ., Ital., Chin. & Rus.)* *ea.* 39.

★Inline Design ... 30 day MBG

1562 ❼3 in Three 31.
1944 ❼Swamp Gas 31.
8809 ❼Tesserae *(addictive puzzle)* 31.
7622 ❼Darwin's Dilemma 2.0 *(Feb. '92)* 31.
3414 ❼Mutant Beach. 44.

Interplay Productions

1894 ❼BattleChess *(3D animation)* 29.
3520 ❼Dvorak on Typing *(Feb. '92)* 29.
1893 ❼CheckMate *(infinite play levels)* 31.
3534 ❼Castles 1.0 *(Feb. '92)* 34.

★Learning Company ... 30 day MBG

2670 ❼Reader Rabbit 3.0 *(CP) (ages 4-7)* 34.
3272 ❼Outnumbered 1.0. 34.
3281 ❼The Writing Center 1.0 51.

★Leister Productions ... 30 day MBG

7126 ❼Reunion 3.0 115.

Mallard Software

❼Scenery Disks 1-4 Flight Simulator. *ea.* 30.

★MECC ... 30 day MBG

3963 ❼Oregon Trail 1.0 28.
3960 ❼Number Munchers 1.2 28.
3959 ❼Word Munchers 1.2 28.
4095 ❼Super Munchers 1.0. 28.

★Microsoft ... 30 day MBG

2868 ❼Flight Simulator 4.0 *(CP)* 43.

★Mysterium Tremendum ... 30 day MBG

5841 ❼Moriarty's Revenge 1.03 32.

★Nordic Software ... 30 day MBG

8258 Turbo Math Facts 1.1 25.
8257 ❼PreSchool Pack - Color 1.0. 35.
2716 ❼Word Search Deluxe 1.0. 35.
8260 ❼Word Quest 1.0 30.

★Penton Overseas ... 30 day MBG

❼VocabuLearn/ce Levels I & II *(Span., Fren., Germ., Ital., Rus., Japan., & Heb.)* . . . *ea.* 35.
❼VocabuLearn/ce Level III *(Span., Fren., Germ., Ital., Rus., & Japan.)* *ea.* 35.
❼PICTURE-IT! *(Spanish, French, German, & Italian)* *ea.* 40.

★Personal Training Sys. ... 60 day MBG

❼Basic Macintosh *(modules 1-4)* . . . *ea.* 62.
❼Converting 6.0 to 7.0 *(modules 1-2)* *ea.* 62.
❼Excel 2.2, 3.0 *(modules 1-9)* *ea.* 62.
❼FileMaker Pro *(modules 1-5)* *ea.* 62.



★Microsoft ... 30 day MBG

4902 ❼ *Excel 3.0*–1991 *MacUser*'s Editors' Choice Award Nominee: Best Data-Management . $309.

9444 ❼ *Microsoft Mail 3.0 (1-5 user)*–1991 *MacUser*'s Editors' Choice Award Nominee for Best Communication Product. Reqs. Mail Server . . . 269.

❼FreeHand 3.0 *(modules 1-5)* *ea.* 62.
❼HyperCard 1.0, 2.0 *(modules 1-4)* . *ea.* 62.
❼PageMaker 4.0 *(modules 1-6)* *ea.* 62.
❼Persuasion 2.0 *(modules 1-4)* *ea.* 62.
❼QuarkXPress 3.0 *(modules 1-4)* . . . *ea.* 62.
❼System 7 *(new users) (modules 1-3)* *ea.* 62.
❼Word 4.0 *(modules 1-4)* *ea.* 62.
❼Works 2.0 *(modules 1-4)* *ea.* 62.

Postcraft International

6466 ❼Citadel 1.21 26.

Sierra On-Line

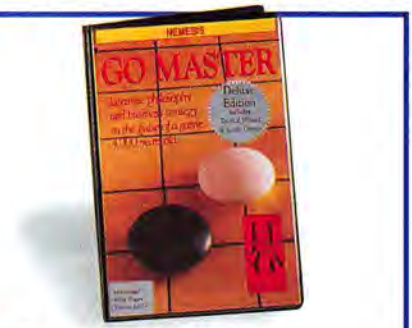
9733 Hoyle's Book of Games II 20.
7367 Space Quest III or 2522 IV. *ea.* 34.
2523 ❼King's Quest V 34.

Sir-Tech Software

8228 Wizardry II: Knight of Diamonds. 28.
8229 ❼Bane of Cosmic Forge 35.

★SoftStream ... 30 day MBG

4073 Colour Billiards. 38.
3501 ❼Classic Trilogy *(Cribbage, Whist, Hearts)* 50.
3472 ❼Family Cards *(Solitaire, Rummy, War)* . . 50.



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7623 ❼ *NEMESIS Go Master Deluxe 5.0*–Learn the ultimate strategy game. Bundles Go Master & Deluxe Toolkit for computerized or modem play, on-line instruction PLUS corner-openings tutor, tactics analyzer & game annotator $104.

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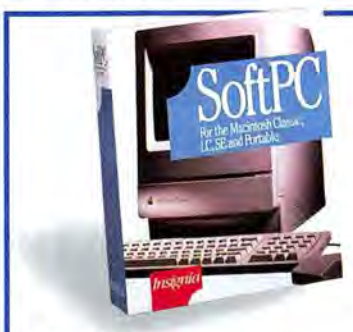
★**Freesoft ... 60 day MBG**
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Software Toolworks
4619 ❼Mavis Beacon Typing 1.3 *(CP)* 32.
1908 ❼World Atlas 1.0 52.
★**Spectrum Holobyte ... 30 day MBG**
8180 ❼Faces 1.0 14.
3464 ❼Tetris 1.3 or 6112 ❼Welltris 1.1 *ea.* 22.
3017 ❼Wordtris 1.0 *(Jan. '92)*. 25.
3459 ❼Falcon 2.2.1 33.
8181 ❼Vette 1.0 33.
★**Spinnaker ... 30 day MBG**
2328 Sargon IV 1.03 *(CP) (chess)* 28.
★**Strategic Studies ... 30 day MBG**
8085 ❼Panzer Battles 1.3.2 26.
2685 ❼American Civil War 1.0 29.
3287 ❼Warlords *(empires at war) (Feb. '92)* . . . 31.
StudyWare
❼ACT, GMAT, GRE, or SAT Prep. . . . *ea.* 29.
8098 ❼LSAT Prep for the Mac 3.7 35.
Terrace Software
8192 ❼Mum's The Word 1.1A *(gardening)*. . . . 79.
9970 ❼Mum's The Word Plus 1.01 *(color)* . . . 107.
★**Toyogo ... 30 day MBG**
7836 ❼NEMESIS Go Junior 5.0 19.
1993 ❼NEMESIS Scribbler 5.0 29.
7624 ❼NEMESIS Go Master 5.0 35.
7623 ❼NEMESIS Go Master Deluxe 5.0. 104.
★**XOR ... 30 day MBG**
6040 MacGolf Classic. 52.
3815 NFL Challenge 1.03. 55.

COMMUNICATIONS
MODEMS, MAIL, NETWORKS

★**Abaton ... 30 day MBG**
6266 InterFax 24/96 Modem. 289.
2724 InterFax 24/96 with InterShare 339.
★**Applied Engineering ... 30 day MBG**
8362 ❼QuadraLink *(with AE Shadow)* 205.
★**Argosy Software ... 30 day MBG**
7872 ❼Software Bridge/Mac 2.0.1 99.
2447 ❼RunPC/Remote 139.
2448 ❼RunPC/Network 279.
★**CE Software ... 60 day MBG**
8066 ❼QuickMail 2.5 *(5 user)*. 249.
8067 ❼QuickMail 2.5 *(10 user)*. 379.
★**CompuServe ... 60 day MBG**
1676 ❼Macintosh Membership Kit 1.5. 25.
1673 ❼CompuServe Navigator 3.04 49.
1674 ❼Membership Kit/Navigator Bundle 72.
★**DataViz ... 60 day MBG**
1823 ❼MacLink Plus/PC 6.0 129.
4842 ❼MacLink Plus/Translators 6.0 109.

★**Dayna ... 60 day MBG**
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DaynaPORT E: SE, SE/30, II, IIsi, LC . . . 207.
8719 EtherPrint or 9888 *(10BASE-T)*. *ea.* 349.
Dove Computer
6758 ❼DoveFax 2.0 . . 269. 3352 NuBus . . 329.
9634 ❼DoveFax Plus . . 349. 4111 NuBus . . 399.
4110 ❼DoveFax LAN . . 499. 4109 NuBus . . 529.
★**Farallon Computing ... 30 day MBG**
Full line available. Partial listing.
9805 ❼Timbuktu 4.0.2 135.
4866 ❼Timbuktu/Remote 3.0 135.
9961 PhoneNET Card PC. 209.
6273 PhoneNET StarConnector 10-Pack 129.
4869 PhoneNET Connector 10-Pk *(DIN8)*. . . . 198.
2206 PhoneNET StarController 300 899.
4802 PhoneNET StarController 357 1025.
4814 PhoneNET StarController 377 1299.
★**Freesoft ... 60 day MBG**
6115 ❼White Knight 11 85.
★**Global Village ... 30 day MBG**
8946 ❼TelePort A300 129.
8945 ❼TelePort/FAX 169.
5327 ❼TelePort/Full FAX. 219.
5321 ❼PowerPort/FAX V.32 489.
Hayes
2300 ❼Smartcom II for the Mac 3.3 84.
8614 Personal Modem 2400 Plus 149.
3522 OPTIMA 96 Modem 479.
7391 ULTRA 96 Modem 669.



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4089 ❼Universal SoftPC 2.5. 195.
3229 ❼SoftAT 2.5. 299.
3441 ❼SoftNode 1.0. . 105. 3454 *(10 Pak)*. . 699.
Intel Corporation
5119 2400EX Modem . . 169. 6420 (MNP) . . 225.
★**Microcom ... 30 day MBG**
7459 ❼CarbonCopy Mac 2.0 *(single)*. 59.
1556 ❼CarbonCopy Mac 2.0 *(unlimited)* 179.
8027 MacModem V.32 689.
★**Microsoft ... 30 day MBG**
9444 ❼Microsoft Mail 3.0 *(1-5 user)* 269.
★**Nuvotech ... 60 day MBG**
3000 TurboNet ST *(DIN8)* . 29. 6751 *(12 Pak)* . 279.
★**Orange Micro ... 30 day MBG**
2394 ❼Orange386 *(16 MHz)* 1549.
2392 ❼Orange386 *(20 MHz)* 1799.
★**Practical Peripherals ... 30 day MBG**
8994 2400 V.42 bis Modem 199.
7934 PM9600SA Modem 1.26 469.
9849 ❼SmartPack 9600 *(with Smartcom II)* . . 529.



★**Berkeley Systems ... 30 day MBG**
2198 ❼ *More After Dark (M.A.D.)*–1991 *MacUser's* Editors' Choice Award Nominee for Best Desktop Diversion. 25 new displays for After Dark. **$23.**
5737 ❼ *After Dark 2.0V*–Stops screen burn-in. 28.
2196 ❼ *After Dark & M.A.D. Bundle*. 42.

★**Prometheus ... 30 day MBG**
2590 ❼ProModem 2400 Mini Plus 129.
3832 ❼ProModem Remote Plus 249.
3232 ❼ProModem 24/96 S/R Minifax Plus . . . 269.
3831 ❼ProModem 9600M-EC 499.
8990 ❼ProModem Ultima 689.
PSI Integration, Inc.
3143 ❼COMstation One 249. 3142 ❼Two 299.
5340 ❼COMstation Four 439.
5339 ❼TravelCOM *(pocket modem)* 499.
5320 ❼PowerModem *(for PowerBook)* 215.
★**Shiva ... 30 day MBG**
3444 ❼NetSerial 1.35. 275.
4347 NetBridge or 4942 ❼TeleBridge 409.
Sitka/TOPS
4188 Teleconnector *(DIN8)* . 23. 2230 *(10)*. . 189.
6264 ❼TOPS Network 3.1 187.
★**Software Ventures ... 30 day MBG**
3455 ❼MicroPhone II 4.0 *(Jan. '92)* 215.
★**Synergy ... 30 day MBG**
6618 ❼VersaTerm 4.6 . 90. 6619 PRO 3.6 . 177.
★**Technology Works ... 30 day MBG**
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1583 ❼GraceLAN 50 Node Upgrade 119.
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3539 ❼Mac 220. 89.
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7149	❼ Xceed IIci-128K Cache Card	239.
2262	Xceed Color 30 Card *(SE/30)*	279.
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Peripheral Land, Inc. (PLI)

8335	PLI TurboFloppy 1.4	309.
8327	PLI Infinity 40 Turbo *(removable)*	699.
9752	PLI Infinity 88 Turbo	849.
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8329	PLI 200 MB	989.
2327	PLI 2GB DAT Drive	1939.
2325	PLI Infinity Optical Drive	3199.
1866	Quick SCSI Card *(requires cable)*	319.

PSI Integration, Inc.

3135	PSI MultiColor	99.
3137	Crunch-It! LC	113.

Sigma Designs

1501	DoubleUp with ❼ DiskDoubler 3.7	179.

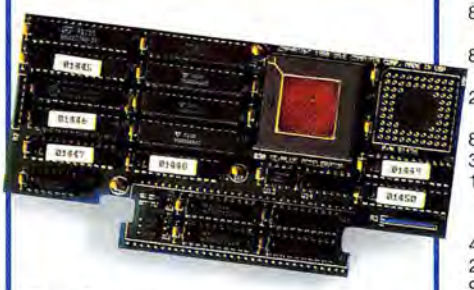
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7817	16 MHz Mercury 030 *(for Mac SE)*	359.
7816	20 MHz Gemini 030	799.
	68882 Math Coprocessors	call

MEDIA

★ **3M ... 60 day MBG**

3943	DC2000 40 MB Data Cartridge	18.



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2214	3½" DS Disks *(10)*	$9.	2242 *(50)*	$39.
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4863	3½" HD Disks *(20)* w/storage case			29.
2243	3½" Color *(10)* DS	10.	2239 HD	18.
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★ **Sony ... 60 day MBG**

3297	3½" DS Disks *(10)*	9.	6148 *(30)*	25.
3298	3½" HD Disks *(10)*	16.	6375 *(30)*	45.
1603	DG60M	16.	2520 DG90M	27.
	Sony ¼" Data Cartridges			call

★ **SyQuest ... 60 day MBG**

6592	44 MB Cartridge	69.	9728 *(10)*	649.
3603	88 MB Cartridge	110.	3600 *(10)*	999.

ACCESSORIES

TONERS, CASES, DUST COVERS

Apple Computer

9773	StyleWriter Ink Cartridge	22.
7748	Personal LaserWriter Toner Cartridge	89.
1115	LaserWriter II Toner Cartridge	105.

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4811	Avery 5182 *(8½" x 11" Trans.-Laser)*	22.
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★ **Curtis Manufacturing ... 30 day MBG**

8973	Apple Security Kit *(SL-2)*	22.

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8374	❼ The Macintosh Bible *(with disks)*	25.

IDG Books

2238	Macworld Guide to System 7 Book	19.

★ **I/O Design ... 30 day MBG**

8812	Ultimate Classic Carrying Case	64.
3371	Ultimate PowerBook Carrying Case	75.
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2559	Apple Security Kit	33.
9303	Keyboard Shelf	39.
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5064	Apple Color Monitor Polarizing Filter	63.

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1505	Oak Disk Case *(36)*	21.
4623 *(90)*		32.

★ **Moustrak ... 60 day MBG**

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2692 *(9"x11")*		9.
2693	Moustrak Pad Low Friction *(9"x11")*	10.

★ **Targus ... 60 day MBG**

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2310 ❼FX9624 Send/receive Fax/Modem . . . 119.
3576 ❼FX9624V Send/receive Fax/Modem . . 169.
1179 ❼V.42bis Modem *(with MacPack)* 139.
2311 ❼V.32 Turbo Modem *(with MacPack)* . . . 419.

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7432 ❼Scan 300/GS *(reqs. Scan Kit)* 829.
2742 Scan 300/Color *(reqs. installation kit)* . . . 989.
1496 Inst. Kit for 300/Color with Photoshop. . . 479.
1537 LaserScript LX 1729.

★ **Advanced Gravis ... 30 day MBG**

9963 ❼Gravis Mouse Stick. 59.
9964 ❼Gravis Super Mouse. 79.

American Power

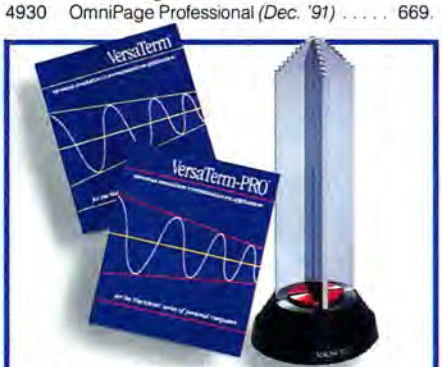
5895 UPS 110SE . . 209. 6686 UPS 370ci . . 339.
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Bravo Communications

9813 2 Position Switch Box *(for laser printers)* . . 95.

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8124 ❼Typist Plus Graphics 479.
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4930 OmniPage Professional *(Dec. '91)* 669.



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6619 ❼ *VersaTerm-PRO 3.6 (Jan. '92)* 177.

CoStar

1884 ❼LabelWriter II 193.
1418 AddressWriter 499.
❼Stingray ADB *(platinum or black)* . . ea. 89.

★ **Curtis Manufacturing ... 30 day MBG**

8046 MVP Mouse *(MVP-1)* 89.

★ **Datadesk ... 30 day MBG**

9830 ❼MAC101E. 129. 2384 with QuicKeys. 149.
6901 Switchboard *(modular keyboard)* 159.

★ **Everex ... 30 day MBG**

1144 ❼Silhouette Trackball 1.0 *(ADB Macs)* . . . 78.

GDT Softworks

3429 ❼BetterWriters 1.0 *(software drivers)* 39.
6256 ❼PrintLink Collection/Serial 4.0.1 59.
8959 ❼PrintLink Collection/Parallel 4.0.1 139.
6151 ❼JetLink Express/Serial 2.1 89.

Hewlett-Packard

6514 HP B&W DeskWriter *(w/cartridge)* 479.
2964 HP Color DeskWriter C *(w/color cart.)* . . . 849.
9993 HP LaserJet IIIP *(with toner, reqs. kit)* . . 1099.
6754 HP LaserJet III *(with toner, reqs. kit)* . . . 1599.
3596 HP ScanJet IIc *(color)* 1599.

★ **Kensington ... 30 day MBG**

2547 ❼Turbo Mouse 3.0 ADB 107.



★ Applied Engineering ... 30 day MBG

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2593 ❼MacVision Gray-Scale Digitizer 3.5 . . . 259.
2879 ❼MacVision Color Digitizer 1.1 499.

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1671 ❼MouseMan. . 77. 1672 ❼TrackMan. . 89.
5082 ❼ScanMan Model 32 G-Scale Scan. . . . 299.

★ **MicroSpeed ... 30 day MBG**

2807 ❼MicroTRAC *(for SE & II family)* 75.
6621 ❼MacTRAC ADB 2.0 *(SE & II family)* 75.

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1981 ❼MS-II OCR Scanner 849.
1978 ❼Scanmaker 600GS 999.
1985 ❼Scanmaker 600ZS 1599.
1982 ❼Scanmaker 1850S 2299.
4505 ❼Truelaser *(with toner)* 1399.

Monster Design Group

1486 MacSpeakers *(two, stereo)* 169.

★ **Mouse Systems ... 30 day MBG**

❼Little Mouse or ❼Little Mouse Plus *ea.* 74.
3005 ❼A^3 Trackball *(ADB)* 79.

★ **Orange Micro ... 30 day MBG**

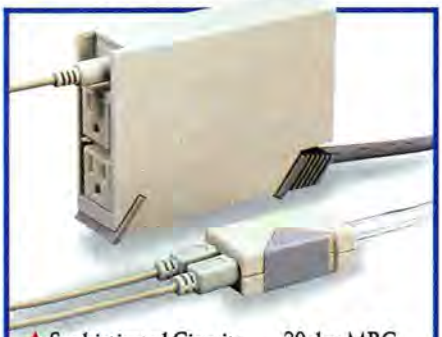
3036 ❼Grappler 2.0. . . . 92. 6229 ❼LX. . . . 111.

★ **Sophisticated Circuits ... 30 day MBG**

8009 ❼PowerKey 2.01 *(Jan. '92)* 76.
8008 ❼PowerKey Remote 32.

Thunderware

4994 ❼LightningScan 400 359.
3107 ❼LightningScan Pro 256 519.



★ Sophisticated Circuits ... 30 day MBG

8009 ❼ *PowerKey 2.01*–Turns your Macintosh and peripherals on from the keyboard and off with "Shut Down" $76.
8008 ❼ *PowerKey Remote*–Allows you to turn on your Macintosh with a phone call. 32.

UPGRADES & DRIVES

MEMORY, ACCELERATORS

SIMMs ... with free video & manual

8316 1 MB SIMMs *(80ns, set of 2)*. $85.
9437 2 MB SIMMs for IIsi or II LC 89.

★ **Applied Engineering ... 30 day MBG**

1971 FastMath LC. 139.
4850 FastMath Classic II 169.
8361 ❼1.44 MB High Density Drive 229.
5290 ❼Plus Drive *(FDHD for Plus & SE)* 309.
2532 QuickSilver Accelerator for the IIsi 309.
3319 TransWarp SE with FPU *(25 MHz)*. 829.
3317 TransWarp SE with FPU *(40 MHz)*. 1499.
4146 TransWarp LC *(33 MHz)* 829. 4147 w/FPU 999.

Computer Care

BookView Imperial *(memory and video card for Apple's PowerBooks)* call
BookRAM 2S, 4S, 6S, DRAM 4 call

★ **Dayna ... 60 day MBG**

8722 DaynaFile II 1.2 5¼" Drive 429.



★ DayStar Digital ... 30 day MBG

RAM PowerCard–Cost effective memory expansion on a NuBus card. Just pop in SIMMs and plug it in...up to 256 MB of standard 1, 4, or 16 MB SIMMs per card call.

★ **DayStar Digital ... 30 day MBG**

Does not include optional math chip.

8949 LT200 Connection *(PC)* 175. 8950 *(MC)* 279.
3584 DualPort IIsi with 20 MHz 68882. 165.
8556 ❼FastCache for Mac IIci 265.
3401 ❼FastCache IIsi. 299.
3389 ❼FastCache IIsi with FPU 369.
PowerCache for SE/30, II, IIx, IIcx, IIci, IIsi, LC 40 MHz 899. 50 MHz 1399.
RAM PowerCard *(various memory config.)*. call

Dove Computer

9788 Racer 030 for Plus or 9790 SE *ea.* 399.
9789 Racer 030 for Mac II. 739.

★ **FWB, Inc. ... 30 day MBG**

2320 HammerDisk44 *(removable)* 739.
2331 PocketHammer 50. 569.
2329 PH 100 769. 2314 PH 200 1199.
2341 Hammer Internal 50is. 389.
2333 100is 599. 2334 200is 999.

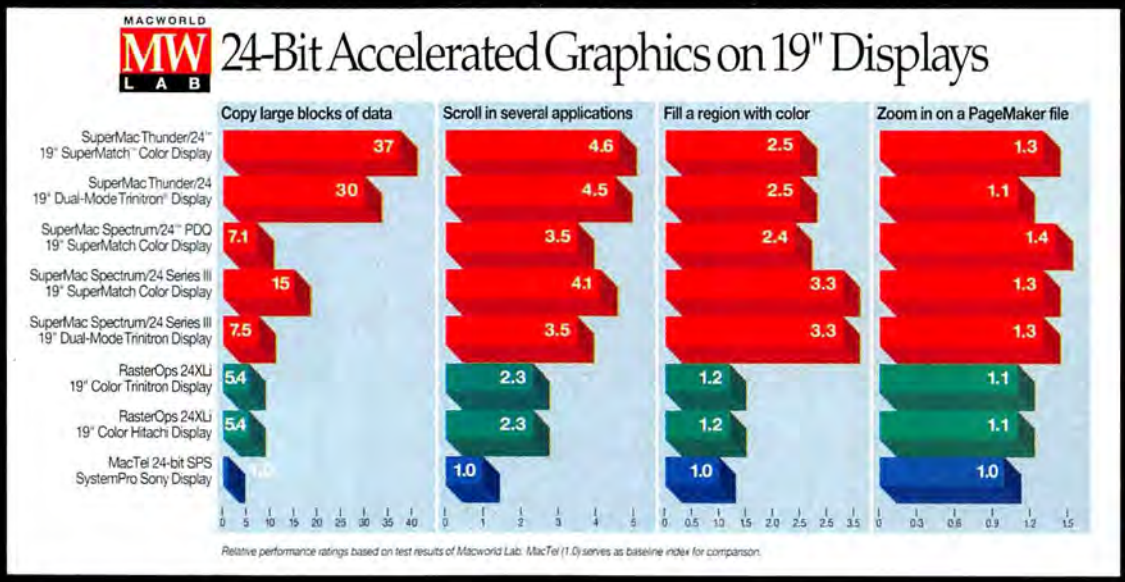
IOMEGA

2224 90 MB Transportable *(reqs. kit)*. 799.
2467 Gold Std. Rem. Disk *(90 MB, tri-pak)* . . . 439.
7789 ❼Mac 1B Interface *(w/Central Pt. Backup)* 39.
2466 ❼Mac 2B Interface *(w/Retrospect)* 99.

Mass Microsystems

2605 DataPak 45. . 649. 2599 DataPak 88. . 899.
4103 DataPak MO 2899.
2973 Diamond 120 MB Hard Drive 679.
2972 Diamond 210 MB Hard Drive 1139.
2969 Diamond 320 MB Hard Drive 1879.
2952 Diamond 510 MB Hard Drive 2599.

Macworld Magazine Rates SuperMac Number 1, 2, 3, 4, and 5!



The 1991 Macworld Lab test results on 24-bit color display systems are in. Out of the fifteen 19" color display systems tested SuperMac™ swept the top five places. And out of the six 21" color display systems, SuperMac captured the top two places. But SuperMac's boards and monitors were not just marginally faster—even our lowest-cost Spectrum/24 Series III outperformed its more expensive competitors.

Macworld just confirmed what SuperMac's customers have known all along—our systems squeeze every ounce of performance out of QuarkXPress, Adobe Photoshop™ and Illustrator,™ Aldus PageMaker and Freehand, and other leading programs. The result: Macintosh systems with workstation class performance.

"Editor's Choice: ... get a SuperMac 21" SuperMatch Two-Page Color Display with a Spectrum/24 PDQ board, or better yet, the super-fast Thunder/24. The color on these systems is beautiful, the text is crisp ..."
Macworld Magazine

See why the experts rated SuperMac tops for speed. Get a full copy of the Macworld report by calling 1-800-334-3005.

SUPERMAC™
The SuperSource for Color

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CIRCLE 131 ON READER SERVICE CARD.

MacUser

1991

THE 7TH ANNUAL

EDITORS' CHOICE AWARDS

Each year, the editors of *MacUser* evaluate hundreds of new Mac products. At the end of 12 months, we have a clear sense of which ones are the real standouts. We also can see the trends that are shaping the market. These trends help guide us in deciding the categories for the ultimate recognition we can bestow on a Mac hardware or software product: The *MacUser* Eddy Award. In 1991, for example, the popularity of the new low-end Macs brought a resurgence in the need for—and the introduction of—integrated applications, so we added a new category for this type of software. The low-end Macs also triggered growth in applications oriented toward more personal use of personal computers, so we added categories for organizational tools and children's software. This year many of the best products came from Apple itself, as evidenced by its sweeping both the Hardware and Software Product of the Year categories and clinching two additional Eddy Awards (and one honorable mention) in other areas.

The Eddy Awards are not a popularity contest. *MacUser*'s editors spent months evaluating, lobbying for, and arguing about the merits of all the products released during 1991. In deciding which products deserve Eddy nominations, utility and value are always key considerations, but innovation and overall quality are also important factors. After countless hours of discussion, we finally narrowed the field to three nominees in each category. A secret ballot determined the winners. In addition to choosing the best overall hardware and software products of the year, we give three special awards: We reward the year's best new technology, a technology that's sure to have an impact on future product development and to change the way we use our Macs.

And because creating all these great products requires great people, we recognize the excellence of the individuals behind the products with the John J. Anderson Distinguished Achievement Award and the Derek Van Alstyne Rising Star Award, named posthumously in honor of two *MacUser* staff members.

And now, the envelopes, please...

BY THE EDITORS OF
MACUSER



1991

BEST

DATA-MANAGEMENT PRODUCT
DATAPIVOT 1.0

As the boundaries between spreadsheet programs and database programs continue to blur, tools that let users integrate their data into the type of software application they prefer become invaluable. At first glance, Brio Technology's **DataPivot 1.0** might look like a spreadsheet-program add-on. But in reality, this unique product is neither spreadsheet- nor database-specific. It's a front-end reporting tool that takes data from anywhere — from a desktop spreadsheet to a remote mainframe database — and lets you instantly explore your data by rearranging it into a more meaningful form, eliminating hours of manual reformatting.

HONORABLE MENTIONS

A newcomer — Claris' Resolve — and a stunning upgrade — version 3.0 of Microsoft's Excel — have raised the bar for savvy spreadsheeting. **Resolve 1.0** incorporates Informix's WingZ scripting language for powerful customization capabilities, and it is a seamless "upgrade" for users of Claris' integrated ClarisWorks package who want to move up to a dedicated spreadsheet program. **Excel 3.0** has simplified the process of creating spreadsheets by incorporating one-touch tools for frequently needed commands and by adding an outliner that helps you see the big picture of the data structure you've created. One other major player, Lotus 1-2-3 for the Macintosh, didn't ship in time for Eddy consideration, but it looks to be a strong contender next year.

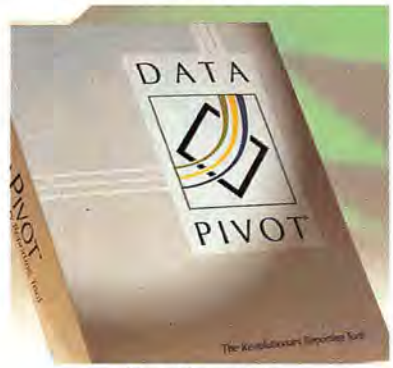
BEST

WORD-PROCESSING TOOL
WORDSCAN PLUS 1.0

WordScan Plus 1.0, from Calera Recognition Systems, brings to the desktop the same OCR (optical character recognition) software found in Calera's $30,000 high-end OCR systems. WordScan Plus sets a new standard for desktop OCR, thanks to its easy-to-use interface and useful features such as multiple recognition zones within a single job, compatibility with Word 4.0, style sheets, and a pop-up verifier that makes it fast and easy to correct recognition errors.

HONORABLE MENTIONS

AccuText 3.0, from Xerox Imaging Systems, is WordScan Plus' chief challenger in desktop OCR. Its features are similar to those of WordScan Plus, with the addition of software intelligence that makes subsequent recognition jobs more accurate. **WordPerfect 2.0.4,** from WordPerfect, may be the most improved product of the year in any category. In its second version, WordPerfect is a legitimate contender for the top berth in the word-processing competition.



DATAPIVOT 1.0



WORDSCAN PLUS 1.0



ACCOUNTANT, INC. 3.0



QUICKEN 3.0

BEST

ACCOUNTING PACKAGE
ACCOUNTANT, INC. 3.0

Softsync/BLOC's **Accountant, Inc. 3.0** is an integrated, full-featured professional accounting system that makes the most of System 7's Apple events and publish-and-subscribe. You can design custom entry forms with Shana's Informed Manager and create links to data in Accountant, Inc. Using publish-and-subscribe, you can publish accounting data from Accountant, Inc., and subscribe to that data from a charting program, spreadsheet program, or word processor, so you gain enormous flexibility in the presentation of financial data. Despite its power, Accountant, Inc., is relatively easy to install and use, even for nonaccountants.

HONORABLE MENTIONS

Satori Software's latest addition to its Components Series is **Job Cost/Time Billing 1.02,** which can be used by itself or in combination with other Components modules. It enables businesses to track costs by project, phase, employee, or contract. Like all Components modules, it offers a full set of drawing tools, giving users complete design control over invoices, statements, and job sheets. **Great Plains Accounting 6.0,** from Great Plains Software, is a modular accounting system that also runs on UNIX, DOS, and Windows platforms. The new System Manager with Executive Advisor module serves as the control center for the entire accounting system. It provides graphical reporting and analysis functions as well as macro and menu-customization capabilities for greater flexibility and ease of use.

BEST

PERSONAL-FINANCE PROGRAM
QUICKEN 3.0

Managing personal finances has never been easier than with **Quicken 3.0.** Intuit has done a first-class job of taking an already excellent program (it won an Eddy in 1988) and making it even better. Version 3.0 adds important features, including the ability to handle more than 200 separate account types in one file, unlimited transaction splits among categories, varied budgets from month to month, and many new customizable reports. Intuit also redesigned Quicken's interface to make it even more of a pleasure to use — something to be thankful for in a program you'll be turning to frequently.

HONORABLE MENTIONS

MECA Software's **Managing Your Money 4.0** remains the most comprehensive personal-finance program for the Mac, with superb financial-analysis features such as retirement planning, tax estimation, investment tracking, and loan analysis. You won't escape paying your taxes, but ChipSoft's **MacInTax**

PHOTOGRAPHY: FRED STIMSON

1991

2.0 takes a lot of the pain out of preparing them. The most popular tax software for the Mac (it won an Eddy in 1989), MacInTax comes with all the necessary forms, worksheets, and instructions, and you can even file by modem.

BEST

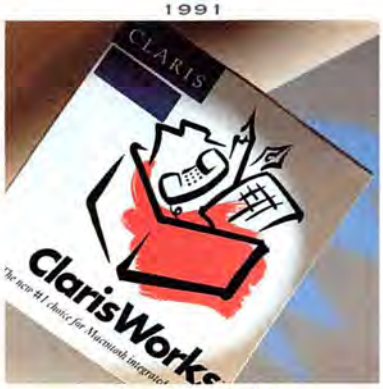
INTEGRATED APPLICATION

CLARISWORKS 1.0

The release of Apple's low-end Macs triggered a surge of new integrated-software packages. Best among the 1991 batch is **ClarisWorks 1.0.** Claris takes the traditional mix of word-processing, spreadsheet, database, graphics, and telecommunications software and delivers it in a very nontraditional package. ClarisWorks is a standout for the smooth, seamless way its modules work together and share data. Users can access tools and functions from a variety of modules without leaving the current document. For newcomers to the Mac, particularly those on a budget, ClarisWorks represents a breakthrough in both price and capability.

HONORABLE MENTIONS

Fair Witness 1.1, from Chena Software, integrates features from outlining, spreadsheet, database, and project-management software. The result is a unique organizational tool that helps users stay on top of their projects, from beginning to end. **Publish It! Easy 2.1,** from Timeworks, goes beyond the standard feature set of a page-design program to integrate major components of presentation, graphics, and database applications. Version 2.1's built-in database lets you do one-stop database publishing and mail-merge, yet it retains its entry-level price.



CLARISWORKS 1.0



FRAMEMAKER 3.0

BEST

PAGE-DESIGN PROGRAM

FRAMEMAKER 3.0

With **FrameMaker 3.0,** Frame Technology has successfully transformed a UNIX product into the premier program for producing technical and book-length documents on the Mac. In addition to standard page-layout features, FrameMaker offers powerful indexing, cross-referencing, automatic table-of-contents generation, book building, and an equation editor. Its cross-platform capabilities let you exchange documents with users of FrameMaker on Sun and NeXT workstations. Version 3.0 adds two unique features — a robust table editor and conditional text — to an already outstanding program.

HONORABLE MENTIONS

DesignStudio 2.0 is the dark horse of high-end page design. Recently reacquired from Letraset USA by its developer, Manhattan Graphics, this full-featured program may finally get the respect it deserves for capabilities such

JOHN J. ANDERSON DISTINGUISHED ACHIEVEMENT AWARD

DRS. CHARLES M. GESCHKE AND JOHN E. WARNOCK

The introduction of the LaserWriter, which made low-cost, high-quality desktop publishing both an opportunity (for Apple) and a necessity (for millions of Mac users), is probably also what made the Mac's continued success an inevitability. It was Adobe Systems' PostScript page-description language that made DTP a practicality. And it was Adobe cofounders John E. Warnock and Charles M. Geschke who made PostScript a reality.

Before cofounding Adobe, Geschke and Warnock were research pioneers at Xerox's Palo Alto Research Center, where they explored many of the technologies behind the graphical user interface. At Adobe the two have overseen the creation of the industry's premier typeface library, including its most recent (and innovative) additions, Multiple Master fonts. Adobe's impressive array of application software includes such industry standards as Illustrator, Photoshop, and Adobe Type Manager.

Warnock and Geschke are currently trying to find a universal standard for viewing a fully formatted PostScript document on-screen that's independent of the operating system, fonts, and software used in the document's creation. Their ambitious solution — code-named Carousel and scheduled for release sometime in 1992 — may not only alleviate the difficulties of sending files from machine to machine but may also create a new paradigm for the electronic distribution of information that greatly reduces the financial and environmental costs of printing and shipping documents.



WARNOCK (LEFT) AND GESCHKE

1991

as the Separator Annex, which provides the most-sophisticated internal color separations of any page-design program, and DesignScript, which automates document creation. Aldus' **Personal Press 1.01** sports user-friendly features such as proxies (interactive preview images) and AutoCreate templates, making it a good choice for beginning desktop publishers.

BEST

TYPOGRAPHIC PRODUCT

FONTSTUDIO 2.0

FontStudio 2.0, from Letraset USA, is the first truly complete font-creation program. It has everything a professional type designer needs for creating PostScript or TrueType fonts from scratch, yet it's still accessible for casual users who just want to add a few custom characters to a font or to define extra kerning pairs. FontStudio is the only program that lets you work on an entire font family at once, and its powerful kerning editor can generate multiple kerning pairs simultaneously. Other innovative features include a parts library, the ability to see and manipulate hints, and interpolation (creating a new font whose weight is between the weights of two parent fonts).

HONORABLE MENTIONS

FontMonger 1.0.5, from Ares Software, is a robust font utility with a slender price tag. Aimed at type novices, FontMonger can quickly produce basic font alterations such as small caps and fractions, plus it converts fonts between the PostScript and TrueType formats. For those who have industrial-strength font-conversion needs, Altsys offers **Metamorphosis Professional 2.03.** This dedicated conversion utility converts fonts among all the Mac formats and also produces fonts for use on the PC Windows and NeXT platforms.

BEST

PREPRESS PRODUCT

CHECKLIST 2.0

ElseWare's **CheckList 2.0** is a must-have utility for designers and illustrators who send files to service bureaus for output. This easy-to-use program scans a PostScript or PageMaker document and creates a report that details what fonts, graphics, and style sheets the file contains, so you'll never again forget to take a critical font or graphic to the service bureau. But that's only part of it. CheckList can also gather all the files needed to output a particular document, copy them to a common folder or disk, and compress them into a self-extracting archive.

HONORABLE MENTIONS

LaserCheck 1.0, from Systems of Merritt, turns your laser printer into a proofing device for an imagesetter, allowing you to catch problems before you spend time and money on imagesetter output. It displays job information



FONTSTUDIO 2.0



CHECKLIST 2.0



CANVAS 3.0



PAINTER 1.0

such as crop marks, screen angles, and processing time, and it flags PostScript errors and color-sep problems. **PrePrint 1.5** is a major improvement to the original version of Aldus' color-separation program. Now a stand-alone program that handles PostScript as well as PageMaker files, it can separate arbitrary page ranges (in page order), download fonts, process the DCS format, and perform image resampling.

BEST

DRAWING PROGRAM

CANVAS 3.0

In the crowded Mac-graphics arena, it's often difficult to distinguish one program from another. But in 1991, one midrange program stood head and shoulders above the others. **Canvas 3.0,** Deneba's Swiss-army knife of a drawing program, bundles all the graphics tools most users will ever need into one innovative, versatile package. Despite a new emphasis on PostScript illustration, Canvas retains its QuickDraw and painting capabilities. Outstanding features include an instant-alignment tool borrowed from the CAD arena, improved Bézier drawing tools, and text handling that lets you create effects rivaling those of high-end drawing programs.

HONORABLE MENTIONS

FreeHand 3.0: This version of Aldus' popular PostScript illustration program has a rounded-out feature set. Performance has been beefed up, and you can now have unlimited named layers. Version 3.0 offers enhanced text controls and many new shortcuts, and its built-in color separator even handles TIFF images. **MacDraw Pro 1.0,** from Claris, is a major overhaul of the classic Mac drawing program. The Pro version's wealth of new features includes charting, 32-bit color, gradient shading, and complex-curve and polygon editing.

BEST

PAINTING PROGRAM

PAINTER 1.0

Painter 1.0 is a must-have program for any Mac artist who wants to create realistic-looking paintings. Fractal Design, the developer of ColorStudio, has delivered an affordably priced, 24-bit tour de force that truly mimics the behavior of natural media such as chalk, crayons, felt-tipped pens, and watercolors. You can actually *see* the brush marks in an oil painting and the nubby texture in a charcoal drawing. Painter supplies a variety of canvas and paper textures, and its innovative clone tool lets you duplicate existing artwork in an entirely different medium, using your own brushstrokes or those of Seurat or Van Gogh. Painter really shines when it's combined with a pressure-sensitive graphics tablet, and it can exchange images with Photoshop and ColorStudio.

PHOTOGRAPHY: FRED STIMSON

MACUSER EDITORS' CHOICE AWARDS

1991

HONORABLE MENTIONS

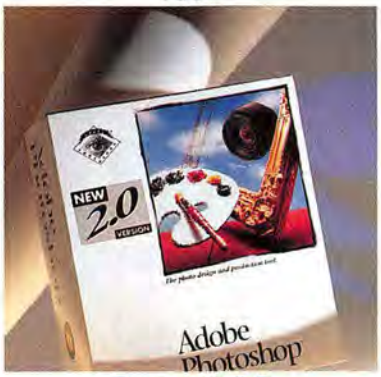
PixelPaint Professional 2.0, from SuperMac Technology, provides electronic artists with a complete array of tools and features, including color separations. Its color-blending, transparency, masking, and anti-aliasing capabilities are all superb. **SuperPaint 3.0,** from Aldus' Silicon Beach subsidiary, takes an old favorite and revs it up to 24-bit color. While keeping the original easy-to-use interface, which switches between painting and drawing modes, this new version provides support for TIFF and EPS formats, special-effects modules, and high-resolution text.

BEST

IMAGE-EDITING PROGRAM

PHOTOSHOP 2.0

Photoshop has been the industry standard for image editing almost since its launch. But Adobe Systems hasn't rested on its laurels. **Photoshop 2.0** improves on its stellar predecessor (the 1990 Software Product of the Year) with revolutionary new features such as true CMYK editing and the ability to import and edit Illustrator files. But Photoshop's most seductive addition may be its easy-to-use yet powerful technique for creating duotones (as well as monotones, tritones, and quadtones). Add to this its improved control over color separations, more intuitive interface, and plethora of plug-in modules, and it's easy to see why Photoshop continues to set the pace in desktop image editing.



PHOTOSHOP 2.0



MODELSHOP II 1.2

HONORABLE MENTIONS

Letraset's **ColorStudio 1.5** is a major improvement to an already powerful product. Key new features include a much needed overhaul of the interface, CMYK editing, and compatibility with Photoshop plug-in filters. **Color It! 1.0,** from MicroFrontier, is the hands-down winner of the "biggest bang for the buck" award. Touted as an economical 32-bit painting program, Color It! boasts particularly strong image-editing tools. Combine this $129 application with Aldus' Gallery Effects, and you have a powerful image-editing package for about half the cost of Photoshop or ColorStudio.

BEST

3-D-MODELING PROGRAM

MODELSHOP II 1.2

MacroMind•Paracomp completely rewrote the original ModelShop to come up with the most complete architectural 3-D-modeling package on the market. **ModelShop II 1.2** has everything you could possibly need in a 3-D-modeling environment — Bézier walls, text, multiple light sources, shadows, rendering, animation, and more. Its intuitive interface, accuracy, and extensive array of input and output capabilities are among the features that

DEREK VAN ALSTYNE RISING STAR AWARD

RANDY UBILLOS

The most important software breakthroughs make possible what otherwise would be beyond our means — whether it's creating a complex 3-D model, publishing a magazine, or simply printing a letter without any spelling or typing mistakes. Randy Ubillos, senior software engineer at SuperMac Technology, has created a program that belongs in this class, a program that holds the promise of putting the power of video communication onto the desktops of thousands of Mac users.

Ubillos isn't a newcomer to Macintosh development. You might remember the OpenIt! and PrintIt! utilities, two of a dozen or so products dating from his days as the Macintosh technical director at Mediagenic. Prior to his Mac efforts, Ubillos was director of software development at COMPUTER:applications, where he worked on products for the Commodore and Apple II computers. But it was at SuperMac that Ubillos' talent burst forth in a virtuoso programming feat: He wrote the core of a program originally known as ReelTime in only ten weeks.

ReelTime has since been acquired by Adobe Systems and rechristened Premiere. It's expected to be one of the most important applications based on Apple's QuickTime standard, offering comprehensive video- and sound-editing capabilities. Together with SuperMac's VideoSpigot board, Premiere promises to make video production as easy in the future as desktop publishing is today. And in a mere ten weeks, Randy Ubillos may have helped usher in the elusive age of multimedia.


PHOTOGRAPH: TOM UPTON

1991

make ModelShop II a soup-to-nuts tool. It's capable of creating conceptual designs, detailed drawings, or rendered multimedia presentations, which can be exported to other programs.

HONORABLE MENTIONS

Presenter Professional 1.0, from VIDI, is a high-end 3-D-object-modeling program aimed at industrial designers. Its breakthrough features include impressive speed and some of the most powerful modeling features ever seen on the Mac — one tool even lets you poke and pull at a rendered image as if it were clay. Although it didn't ship in time for consideration this year, Alias Research's Sketch! is another 3-D contender. Its innovative interface and unique features such as the ability to draw a free-form curve in a perspective view should make Sketch! a program to watch in 1992.

BEST

RENDERING PROGRAM

STRATAVISION 3D 2.0

StrataVision 3d 2.0, from Strata, is an excellent upgrade to an industry favorite for professional rendering. Already vested with a complete set of rendering tools, StrataVision now offers increased rendering speed, image filters for Photoshop-like effects, new modeling tools, more import formats, and animation features. But what really sets version 2.0 of StrataVision 3d apart from the rendering crowd are its plug-in extensions, which can quickly add new abilities to the program. Strata and third-party developers offer libraries of precreated objects and textures, which enable you to create detailed models quickly and easily.

HONORABLE MENTIONS

Specular International's **Infini-D 1.1** brings high-quality 3-D visualization to a nontechnical audience. Acclaimed for its streamlined interface, Infini-D is also the first product to provide a fully integrated suite of 3-D-modeling, rendering, and animation capabilities. **SwivelMan 1.0,** from MacroMind•Paracomp, combines two popular products, Swivel 3D and RenderMan, putting a friendly face on RenderMan's top-notch rendering power. For multimedia mavens, SwivelMan also includes the QuickPICS utility for sound, animation, and compression.

BEST

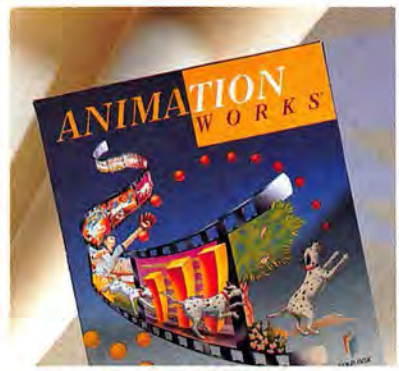
ANIMATION PROGRAM

ANIMATION WORKS 1.0

Gold Disk's **Animation Works 1.0** provides the ideal blend of performance, affordability, and ease of use. Its one-two combination of intuitive interface and excellent feature set enables anyone to create effective animations in a remarkably short time. Animation Works provides several editing modes, including a background editor, a cel editor for modifying actors, and a movie editor for composing the animations. It also lets you incorporate special effects such as color cycling and sound.



STRATAVISION 3D 2.0



ANIMATION WORKS 1.0



APPLETALK REMOTE ACCESS 1.0



NETWARE 3.11 WITH NETWARE FOR MACINTOSH 3.01

HONORABLE MENTIONS

Intended for professional animators, the **Electric Image Animation System 1.03,** from Electric Image, boasts one of the most extensive feature sets of any animation system ever offered on the Mac. Its Projector also lets you control various VTR (videotape recorder) controller systems. **Infini-D 1.1,** from Specular International, offers excellent animation capabilities integrated with 3-D-modeling tools and intuitive rendering options. Infini-D's text-morphing capabilities allow you to effortlessly metamorphose extruded 3-D letters or words.

BEST

COMMUNICATIONS PRODUCT

APPLETALK REMOTE ACCESS 1.0

Apple Computer's **AppleTalk Remote Access 1.0** provides dial-in access to AppleTalk networks. Although AppleTalk dial-in capability has previously been available from third-party vendors, Apple's implementation offers an unparalleled degree of integration with the Macintosh user interface. AppleTalk Remote Access uses System 7's Users and Groups paradigm to manage access and lets you create aliases to both files and folders, on which you can double-click to initiate a remote connection. The software makes impressive use of low-bandwidth modem connections by combining V.42bis data compression with Apple's own buffering technology, further reducing the amount of data sent over a dial-up link.

HONORABLE MENTIONS

Keeping track of group conversations is tedious at best, but Pacer Software's **PacerForum 1.0** brings structure to Mac-based interactive discussions. A central server maintains all the discussion threads while clients read them, create responses, and generate new threads. Users can be assigned access privileges, so a discussion can be limited to those with a need to know. **Microsoft Mail 3.0 with Schedule+ 1.0** is the first Mac product to build a group-oriented application atop an E-mail architecture. By creating a group scheduler in this manner, Microsoft has avoided the duplication of integral E-mail features such as directory services.

BEST

CONNECTIVITY SOFTWARE

NETWARE 3.11 WITH NETWARE FOR MACINTOSH 3.01

Novell's NetWare is the most popular network operating system for file servers in the PC environment. **NetWare 3.11 with NetWare for Macintosh 3.01** makes it far easier than did previous versions to integrate Macs into

PHOTOGRAPHY: FRED STIMSON

1991

NetWare networks. Both installation and administration are simplified in the new release, which also offers a significant performance boost. Add these improvements to its backup and security features, and you'll see why NetWare is an attractive alternative to Apple's AppleShare file server.

HONORABLE MENTIONS

Tenon Intersystems' **MachTen 1.0.1** is a full Mac implementation of MACH UNIX 2.5. It seamlessly integrates the Mac environment with UNIX and runs on almost any Mac, including the Plus and the Classic. DataViz's **MacLinkPlus/PC 6.0** is a robust collection of file-format translators. Version 6.0 enables System 7 users to translate a file into a different format simply by dragging it onto the MacLinkPlus/PC icon, and it supports Claris' XTND file-translation technology.

BEST

CONNECTIVITY HARDWARE

LocalSwitch

LocalSwitch, from Tribe Computer Works, is a cost-effective alternative for those who are pushing the performance limits of their LocalTalk networks but can't afford an upgrade to Ethernet. This 16-port packet-switching hub can divide LocalTalk traffic into as many as eight simultaneous "conversations"—between workstation and server; workstation and printer; or in the case of System 7's file sharing, between two users — each at the full 230-Kbps LocalTalk bandwidth. Because each network conversation is transmitted only between the two affected nodes, the LocalSwitch can increase the effective bandwidth of many LocalTalk networks to as much as 3.6 Mbps.



LocalSwitch



Now Utilities 3.0.1

HONORABLE MENTIONS

NRC's family of **MultiGate Hubs** combines performance, reliability, multiprotocol support, and network management at a reasonable price and is an excellent choice for growing Ethernet networks. The **NetModem/E,** from Shiva, is the first shareable modem for both Mac and PC Ethernet networks, and it provides full remote dial-in access.

BEST

UTILITY

Now Utilities 3.0.1

Now Utilities 3.0.1, from Now Software, is an essential collection of utilities and system add-ons designed especially for System 7 users. NowMenus lets you organize System 7's Apple menu hierarchically so you can easily navigate what can otherwise become an unruly monster. Super Boomerang keeps your most frequently used files, folders, and applications at your fingertips, either from the Apple menu or from a mini-menu bar that it installs in all Open and Save dialog boxes. This outstanding

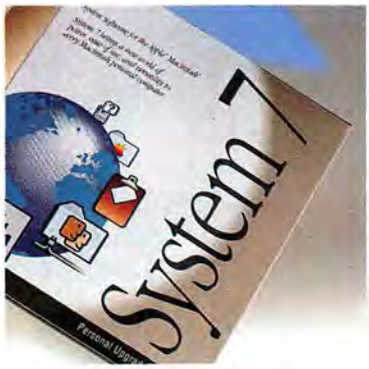
SOFTWARE PRODUCT OF THE YEAR

System 7

It was late. It needed more memory. It shipped with a misguided compatibility checker. It was later. It had the world's most annoying on-line help system built in. It was *very* late. But after the dust settled and the hoopla died down, the most important thing about Apple Computer's System 7 — the one thing that *nobody* dared predict — was that it really worked. Unlike the first release of Apple's other major system-software revisions, 7.0 actually proved more stable than the older system it was succeeding.

And it changed the way we work. Apple events. Publish-and-subscribe. Aliases. 32-bit addressing. Virtual memory. File sharing. Apple Menu Items. A Finder that actually knows how to find. Anyone who has switched to System 7 has discovered that it can significantly change the way we use a Mac — for the better. And the best is yet to come. IAC (interapplication communication) will let programs directly share features via "hot links." Developers are upgrading applications to take advantage of this far-reaching technology.

System 7 was a major test for Apple. At a time when graphical user interfaces were achieving unprecedented popularity, could the company that pioneered them maintain its technical edge? Apple passed that test with flying colors and, to its credit, hasn't looked back. System 7 continues to grow and improve, with QuickTime extensions being just the latest addition to what promises to be the richest environment for personal computing on any platform for quite a long time to come.



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package has eight more utilities, including an application launcher, a font-menu organizer, and a clock, but NowMenus and Super Boomerang alone are worth the price of admission.

HONORABLE MENTIONS

Two products from CE Software round out the list of the year's top utilities. **QuicKeys 2.1** is the version of the Mac's best macro package that extends into System 7. It includes extensions for a variety of tasks and applications, and it supports Apple events and UserLand's Frontier. **Tiles 1.0** is a unique utility that watches you work and then iconizes your activities. With Tiles, you don't have to remember where you put applications or documents, because you can access all the files related to a project from a Tiles icon on your desktop. When you use Tiles in combination with QuicKeys, you can even make an icon for a macro and launch it with a click.

BEST

COMPRESSION PRODUCT

PICTUREPRESS 2.0 WITH STORMCARD

Storm Technology's **PicturePress 2.0** is an exemplary implementation of JPEG color compression. In addition to offering software-only compression and decompression, PicturePress can be used with the **StormCard,** a DSP-based NuBus card, to achieve very high performance. Unlike other hardware JPEG implementations, the StormCard is not locked to a particular revision of the JPEG standard and therefore doesn't require upgrading. Each time the card is used, the PicturePress software is loaded onto the card and executed there. As faster algorithms and newer revisions of JPEG evolve, you'll have to upgrade only the PicturePress software.

HONORABLE MENTIONS

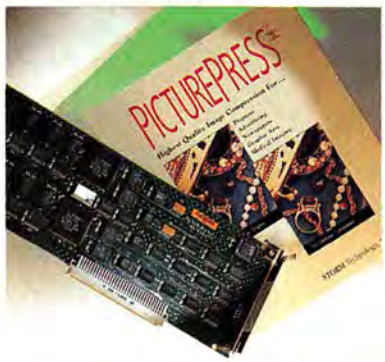
DiskDoubler 3.7.1, from Salient Software, is the System 7-compatible release of this popular compression utility. Radius' **ImpressIt 1.1** is the fastest Mac-based, software-only JPEG implementation. Its unique preview window shows how much image degradation will occur at different compression settings.

BEST

ORGANIZATIONAL TOOL

FAIR WITNESS 1.1

This year's best organizational tool is an outliner with extraordinary depth and power. **Fair Witness 1.1,** from Chena Software, mixes metaphors from outlining, spreadsheet, database, and project-management software to serve as an excellent tool for managing projects from brainstorming to completion. Its spreadsheet view lets users attach additional data, including graphics and sound, to categories and subcategories entered in the outliner. The database and project-management features come into play for viewing project data in a wide variety of ways, including a Gantt-like time-chart view for scheduling.



PICTUREPRESS 2.0 WITH STORMCARD



FAIR WITNESS 1.1



SPYGLASS TRANSFORM 2.0



THINK C 5.0

HONORABLE MENTIONS

Pastel Development's **DayMaker 1.01** is the most flexible scheduling software around, combining to-do lists, calendars, alarms, and Gantt charts. In the crowded field of address-book managers, **TouchBASE 2.0,** from After Hours Software, stands out. Noteworthy for its speed and wide range of search options, it serves as both a personal and network-ready address-book package.

BEST

SCIENCE/ENGINEERING PRODUCT

SPYGLASS TRANSFORM 2.0

Spyglass Transform 2.0, from Spyglass, brings workstation abilities to the Mac by turning buckets of numbers into pictures that make sense. Spyglass Transform takes numbers from individual measurements, medical scans, or sonar and creates images by using color raster imaging, a process that assigns a color value to each data point. It can also create contour, vector, and color surface plots. Analysis features include the overlaying of different images, interpolation of missing data, and Fast Fourier Transforms. Transform comes with Spyglass View, a module that animates Spyglass Transform's raster images.

HONORABLE MENTIONS

Mathematica 2.0, from Wolfram Research, also turns data into pictures, but it starts with mathematical equations and functions. You can solve algebraic equations and represent data as sound, and Mathematica includes a high-level programming language that works over networks with other Macs, UNIX workstations, and PCs. For an innovative, versatile approach to statistical analysis, SAS Institute's **JMP 2.0** is hard to beat. Its uniqueness lies in the balanced combination of several statistical approaches and the frequent use of interactive graphs to uncover hidden facets in data.

BEST

DEVELOPMENT TOOL

THINK C 5.0

Symantec's **THINK C 5.0** is a major new release of the most popular C-language system on the Mac. THINK C's development environment hasn't changed much, but its compiler was rewritten from scratch. The quality of code generated by THINK C 5.0 is thus the best available on the Mac. THINK C's compiler incorporates a global optimizer that can be set to improve code quality even more, although compilation speed suffers. Considering how many commercial applications are written with THINK C, developers won't be the only Mac users who benefit from this new release.

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HONORABLE MENTIONS

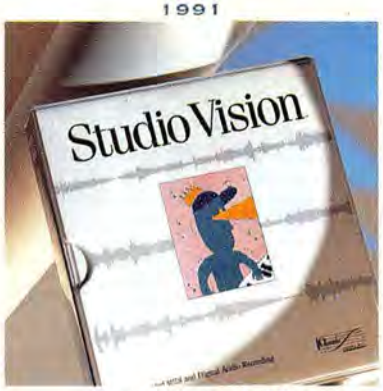
TGS Systems' **Prograph 2.5** is the latest release of the pictorial language-development system that won an Eddy Award two years ago. Version 2.5 is an innovative, well-rounded development package that includes an interpreter, a native-code compiler, extensive support for System 7, and a database manager. Symantec's **THINK Reference** is a programming reference for the Mac. An excellent value for the money, it includes most of the information from volumes I to V of *Inside Macintosh*. THINK Reference is cross-referenced and contains hypertext links that let users access information much faster than they could if they looked it up by hand.

BEST

MUSIC/SOUND PRODUCT

STUDIO VISION 1.32

Opcode Systems' **Studio Vision 1.32** breaks new ground by combining MIDI sequencing with the power of digital audio. Incorporating the features of its award-winning program Vision, Opcode extends the sequencer paradigm beyond the MIDI domain. By combining Studio Vision with Digidesign's Sound Tools or Pro Tools board, musicians and audio/production engineers can digitally record audio tracks to disk and then edit and mix both MIDI and audio tracks in one environment.



STUDIO VISION 1.32



"UNDERSTANDING OURSELVES" VIDEODISC SERIES

HONORABLE MENTIONS

Digidesign's **Pro Tools 1.0** is a NuBus board that transforms the Mac into a four-track digital-audio recorder. This aggressively priced board puts professional-level audio production into the hands of the masses. **Studio 5,** a MIDI interface from Opcode Systems, has enough bells and whistles for any studio professional. It offers 15 separately addressable MIDI ports and a SMPTE-to-MIDI time-code converter, along with enough memory to store as many as 128 configurations.

BEST

EDUCATION PROGRAM

"UNDERSTANDING OURSELVES"

High technology shines in ABC News Interactive's **"Understanding Ourselves"** videodisc series. Created as a guide to healthy living for teenagers, the three-volume classroom resource includes "Health: AIDS," "Health: Teenage Sexuality," and "Health: Drugs and Substance Abuse." Each volume uses HyperCard to let students control a videodisc player and navigate through the vast collection of information. Former U.S. Surgeon General C. Everett Koop serves as a content guide, and the videodiscs use graphics, sound, rap music, question-and-answer sessions, and video interviews to grab the teen audience's attention. The whole series is narrated in either

HARDWARE PRODUCT OF THE YEAR

THE POWERBOOK FAMILY

The much maligned Macintosh Portable was an oxymoron. Big and heavy, it didn't appeal to anyone except diehard Mac users. The rest of us waited (and prayed) for Apple to come to its senses and make a truly transportable computer.

The wait is finally over, and Apple's new notebook Macs — the PowerBook 100, 140, and 170 — are worth every agonizing minute. Lightweight and powerful, they show just how good a notebook computer can be. All the PowerBooks weigh less than 7 pounds, even with hard drives, and their footprints are roughly the same as a letter-sized piece of paper. An innovative keyboard layout sets a new standard in ergonomic notebook design. The keys are strategically placed at the rear of the base, leaving room for a wrist rest and an integrated trackball.



All three PowerBooks have backlit screens, which are clearly visible across a wide viewing angle — another major improvement over the original Mac Portable. They include an ADB port, a SCSI port, and a LocalTalk port for networking, and they come bundled with Apple's unique AppleTalk Remote Access software, which lets you dial in to your desktop computer or network as if you were actually there. An internal data/fax modem is optional on the 100 and 140 models and standard on the PowerBook 170.

With an aggressive pricing structure and performance that easily surpasses that of the Mac Classic, the PowerBooks will appeal to anyone on the go who wants to keep on computing.

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English or Spanish and includes closed captioning.

HONORABLE MENTIONS

MacGlobe 1.0, from PC Globe, is a colorful electronic world atlas that includes data on such topics as national anthems, health conditions, political parties, tourist information, and world organizations. Yearly updates keep you current on the ever-changing planet Earth. **Mozart: The "Dissonant" Quartet** is the latest addition to The Voyager Company's excellent CD Companion Series. This interactive HyperCard stack provides a digitized version of the quartet and teaches you about every part of it, includes a history of Mozart's life and times, and even challenges your understanding with a Quartet game.

BEST

CHILDREN'S PROGRAM

KID PIX 1.2

Kid Pix 1.2, from Brøderbund Software, is not just 1991's best children's program — it's as imaginatively conceived and well executed a piece of software as we could find in *any* category, period. This surprisingly versatile color painting application combines a rich set of inventive tools with a playful approach to such common operations as erasing, copying, and pasting — all with appropriate, amusing sounds. Kid Pix creates an ideal introduction to the Mac for even the youngest child.

HONORABLE MENTIONS

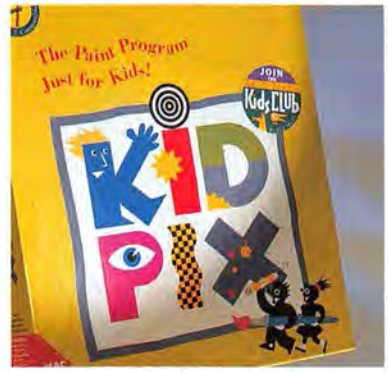
Excellent graphics, a rousing arcade-style game, and a rich variety of math challenges elevate **OutNumbered! 1.0,** the latest in the Super Solvers series from The Learning Company, above this year's crop of tutorial applications. **Swamp Gas 1.01,** Inline Design's first offering in a planned series of geography games, mixes action, wit, and clever graphics to entice kids — and adults — to explore the states, cities, and landmarks in the good ol' US of A.

BEST

GAME

3 IN THREE

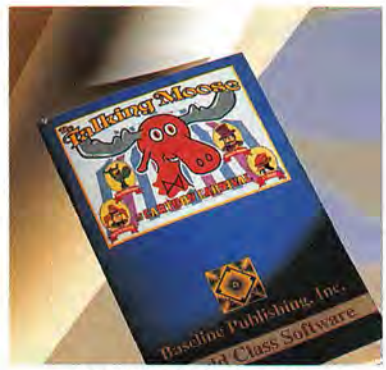
Cliff Johnson is a legend among Mac game players (remember The Fool's Errand and At the Carnival?). His latest offering, **3 in Three,** contains the usual quota of brainteasers and bizarre humor. Distributed by Inline Design, the game is actually a collection of puzzles — 80 in all — held together by a *Tron*-esque plot. Your mission: Help a lost number *3* find her way out of the Mac's innards by solving a mixture of anagrams, word squares, logic problems, mazes, number progressions, and weird and infuriating puzzles with no obvious rules. The color graphics and sound are impressive, and the game has more than 60 minutes of animated screens. 3 in Three is just as infuriating and addictive as Cliff's previous games.



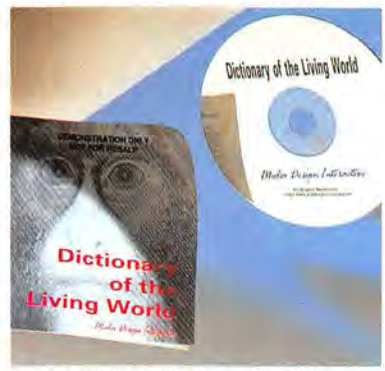
KID PIX 1.2



3 IN THREE



THE TALKING MOOSE AND HIS CARTOON CARNIVAL 4.0



DICTIONARY OF THE LIVING WORLD

We can hardly wait for the next one!

HONORABLE MENTIONS

Spaceship Warlock, from Reactor, is an animated space adventure that has you battling to liberate humankind from the evil Kroll. The game's graphics and sounds are truly phenomenal — and the program's so huge (128 megabytes!) that it's available only on CD-ROM. In **Spectre,** from Velocity Development, you drive a tank around a battlefield, shooting the enemy in a high-tech version of Capture the Flag. The 3-D graphics move in real time, and — best of all — you can annihilate friends and coworkers by playing the game over a network.

BEST

DESKTOP DIVERSION

THE TALKING MOOSE AND HIS CARTOON CARNIVAL 4.0

The original Talking Moose was one of the first nonproductive-but-entertaining programs written for the Mac. The infamous Moose would pop on-screen at intervals, offering sage commentary in a strangely accented voice. Now the world's second-most-famous moose returns to the desktops of America in **The Talking Moose and His Cartoon Carnival 4.0,** from Baseline Publishing. This time around, he's accompanied by a gallery of goofy characters, from Stinko the Evil Clown to Maj. Tom Beaver. If you're industrious, you can put your own words into the mouths of the colorful cast. When one of these smart alecks pops up on your screen and spouts off, it's animated proof that using a Mac can still be fun.

HONORABLE MENTIONS

Berkeley Systems' **More After Dark 1.0** adds a wealth of jazzy new modules to the popular After Dark screen saver, including a game and a virus checker. **Wallpaper 1.0,** from Thought I Could, lets you make your own extra-large desktop pattern or choose from hundreds of creative designs.

BEST

DATA RESOURCE

DICTIONARY OF THE LIVING WORLD

If this year's three CD-ROM-based nominees for Best Data Resource are a reliable indicator of the marketplace, it's finally time to buy that CD-ROM drive whose purchase you've been postponing. Our top pick, Media Design Interactive's **Dictionary of the Living World,** is an ingeniously conceived multimedia database of life on earth — from the microscopic to the mammoth. Its 2,000 HyperCard-based entries are enriched with environmental sounds, full-motion video, instructive animations, detailed maps, and illuminating narration.

HONORABLE MENTIONS

AgfaType 3.0, from Agfa Compugraphic, is the best of the new breed of unlockable font

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CD-ROMs. For one low price, you get access to the entire typeface libraries of Adobe Systems and Agfa Compugraphic at your fingertips — *plus* 7 megabytes of shareware, several commercial programs, and a wonderful interactive tutorial on typography. InterOptica Publishing, of Hong Kong, uses brilliant graphics, extensive sound and music, and detailed information on its first CD-ROM, **MultiMedia World of Travel: Volume 1 — The Orient,** to help prospective visitors plan a trip to the western side of the Pacific Rim.

BEST

VISUAL RESOURCE

GALLERY EFFECTS 1.0

For those who lack the talent or wherewithal to use a sophisticated graphics package, Aldus' **Gallery Effects 1.0** produces professional-looking artwork at a budget price. Developed by Aldus' Silicon Beach Software subsidiary, this collection of special-effects filters works with scanned photos, digital paintings, and animations. Volume 1: Classic Art provides 16 customizable effects such as charcoal, watercolor, and emboss. In a novel approach to making the program easy to use, the effects are accessible in four ways: via an application or a desk accessory, as XCMDs, or from within other programs (such as Photoshop) via plug-in modules.



GALLERY EFFECTS 1.0



TRACKMAN

HONORABLE MENTIONS

The **Backgrounds for Multimedia series,** from Artbeats, supplies beautiful high-tech illustrations (on CD-ROM) for slides, on-screen presentations, animations, and 3-D texture mapping. The 8- and 24-bit-color PICT and TIFF files include marble, wood, patterned, and abstract images plus an assortment of matching mortices, bands, and buttons. Prefer a photographic approach for your backgrounds and textures? **Folio 1,** from newcomer D'pix, provides 100 superb color photographs of objects such as bricks, fabric, and water as well as more-abstract images.

BEST

INPUT DEVICE

TRACKMAN

Trackballs have been around longer than mice, but only recently have they started to proliferate on the Mac. Logitech's **TrackMan** is a good example of why many users are switching. Each of its three buttons can have any keystroke assigned to it, and you can save different keystroke-setting files for different applications. The TrackMan's flexible design makes it suitable for right- and left-handed trackballing, and its modest size ensures that a wide range of users will find it comfortable.

HONORABLE MENTIONS

Calcomp's **DrawingBoard II** digitizing

BREAKTHROUGH TECHNOLOGY OF THE YEAR

OFOTO

When Apple said that its new OneScanner would ship with the most incredible scanning software ever, it wasn't kidding. Ofoto 1.0, developed by the geniuses at Light Source, sets a new standard of simplicity for gray-scale scanning that will have a broad impact on Mac users. In its initial release, Ofoto was bundled exclusively with the OneScanner, but by the time you read this, Ofoto 1.1 should be available as a stand-alone product (from Light Source) that works with a variety of scanners.

Before Ofoto, scanning was a complex process that usually required multiple steps. With Ofoto, you can just slap an image onto the scanner bed (at any angle!), click the mouse button, and get a perfect scan. How does Ofoto do it? First, it lets you calibrate a scanner to any printer or imagesetter. The result: The image that comes out of your printer looks as close to the original as the technology allows. Second, Ofoto automatically determines the correct scanning resolution, based on the printer-calibration data. If you are scanning an already screened halftone, Ofoto will "descreen" it to prevent problems with moiré patterns. Third — our favorite part — Ofoto automatically rotates the image to get it straight. This uncanny software also crops off unnecessary white space around an image, and it even remembers settings from scan to scan.



Ofoto has truly achieved a first: one-button scanning. This accomplishment will make more people feel confident integrating scanned images into their documents and will improve the appearance of the images they use.

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tablet combines excellent software with ergonomically well-designed hardware. The **Thumbelina ADB RS400,** from Appoint, is an innovative trackball that fits in the palm of your hand, with the useful ability to change the speed of tracking at the click of a button.

BEST

SCANNER

LEAFSCAN 35

Many manufacturers from the world of professional publishing have tried to enter the Mac market, but few have succeeded as brilliantly as Leaf Systems has with its **Leafscan 35** slide scanner. The Leafscan's images are simply marvelous, from their fine detail to their broad tonal range. Fast, compact, and versatile, the Leafscan 35 brings professional-quality color scanning to the desktop.

HONORABLE MENTIONS

Two affordable flatbed scanners also caught our editors' attention this year. Apple Computer's 8-bit gray-scale **OneScanner** is a solid performer, but what makes it exceptional is its Ofoto "What You See Is What You Scan" software. With Ofoto, getting the right scan isn't a matter of luck and learning — it's automatic. Hewlett-Packard's 24-bit-color, one-pass **ScanJet IIc** comes with the most-sophisticated calibration software in its class, producing excellent color or gray-scale scans quickly, accurately, and easily.

BEST

DISPLAY PRODUCT

NOTEBOOK DISPLAY ADAPTORS

Want to hook up an external monitor to your PowerBook? Envisio's **Notebook Display Adaptors** let you do just that, supporting all Apple and many VGA displays via a lightweight, internally mounted video interface. The Adaptors connect to the PowerBooks' memory-expansion port and route video out through a miniature connector. A lightweight adapter cable makes the connection to Apple-standard cables. Adaptors for the PowerBook 100 support monochrome video and as much as 2 megabytes of RAM expansion; models for the PowerBook 140 and 170 support as many as 256 colors and as much as 4 megabytes of RAM expansion.

HONORABLE MENTIONS

Proxima's **Ovation** is an active-matrix color LCD panel that surpasses the competition through its marriage with **Cyclops,** an innovative remote-control system that uses an LED or optional laser pointer to operate a mouse remotely. Radius' **PrecisionColor Display/20** has a special microprocessor that automatically adjusts the display to match the resolution of whatever video card you have installed, from 640 x 480 mode for presentations to 1,152 x 882 mode for two-page layouts. Even better, it remembers the screen settings for each resolution, ensuring that your windows and icons remain on-screen when you switch resolutions.



LEAFSCAN 35



NOTEBOOK DISPLAY ADAPTORS



LASERWRITER IIG



PHASER III PXI

BEST

MONOCHROME PRINTER

LASERWRITER IIG

Apple Computer has brought desktop printing to a new level with the **LaserWriter IIg.** Text and graphics have never looked so good, thanks to its Adobe PostScript Level 2 interpreter and custom ASIC chips for FinePrint and PhotoGrade. FinePrint's text-smoothing capability rids your output of jaggies, and PhotoGrade doubles the line-screen resolution and the number of gray levels available from a 300-dpi engine. As if that weren't enough, the LaserWriter IIg also sports an EtherTalk port and it has a 25-megahertz 68030 chip for speedy throughput.

HONORABLE MENTIONS

Hewlett-Packard's **LaserJet IIISi** for the Macintosh is everything a business printer should be. Resolution Enhancement Technology and a RISC-based 17-ppm engine make this the business printer of choice. The **QMS-PS 815 MR,** from QMS, packs a lot of power into an amazingly small package. This LaserWriter II-sized printer offers 45 Adobe fonts, 600-x-600-dpi resolution, and automatic switching between input ports.

BEST

COLOR PRINTER

PHASER III PXI

The Tektronix **Phaser III PXi,** an Adobe PostScript Level 2 printer, is the first color printer to use phase-change inkjet (popularly known as crayon-jet) technology. It produces exceptionally vivid color prints on plain paper at sizes up to 12 x 18 inches, and its consumables — sticks of colored wax — yield a low cost per page while minimizing waste. Powered by an AMD Am29000 RISC processor, the Phaser III PXi provides good performance and is networkable.

HONORABLE MENTIONS

Seiko Instruments' **ColorPoint PSX,** also a color printer that can produce full-bleed tabloid-sized output, combines thermal-wax technology with the PhoenixPage PostScript clone at an attractively low price. The Hewlett-Packard **DeskWriter C,** a color inkjet printer, makes color printing affordable enough for individual desktop use.

BEST

ACCELERATOR BOARD

POWERCACHE FAMILY

DayStar Digital has developed a single universal accelerator for the Macintosh II, IIx, IIcx, IIci, IIsi, and SE/30. The **PowerCache** uses low-cost adapter cards to mate the accelerator to each Mac. The PowerCache's 68030-

PHOTOGRAPHY: FRED STIMSON

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based design makes it almost as fast as the new 68040 CPU chips, but it's compatible with the current crop of Mac hardware and software, including A/UX. DayStar's trade-in program lets you swap adapter cards free of charge and buy additional adapters for only $99.

HONORABLE MENTIONS

The **Radius Rocket,** from Radius, is a 68040 accelerator that breathes new life into tired Mac II and IIx machines, which Apple has forgotten in its current upgrade program to the Quadra family. The Rocket deserves extra kudos for its out-of-the box compatibility with popular Mac applications, which it achieves by automatically turning the 68040 cache on and off on an application-by-application basis. The **New Life Accelerator! for the Classic,** from New Life Computer, is a low-cost alternative to the Classic II upgrade. It doesn't have 32-bit QuickDraw, but it supports as much as 16 megabytes of RAM and has a video-expansion port that accepts cards for one- and two-page monochrome displays.

BEST

STORAGE PRODUCT

MICRO/RAVEN •040 FAMILY

Just when you thought SCSI could go no faster, along comes Micronet Technology with its **Micro/RAVEN •040 family.** The Micro/RAVEN •040 is a disk array — a series of internal and external drives (various capacities and speeds are available) — that's attached to the internal SCSI bus of the Quadra 700 or 900. Micronet's SCSI manager takes over I/O tasks from the Quadra's SCSI manager and doubles the drives' transfer rate. Using two superfast Seagate Wren Elite II hard-disk drives, this system has sustained transfer rates of 7 megabytes per second. Color-prepress houses and service bureaus will benefit from the tremendous capacity and performance of these systems.



POWERCACHE FAMILY



MICRO/RAVEN •040 FAMILY

HONORABLE MENTIONS

FWB Software's **Hard Disk Toolkit 1.0** is a powerful collection of utilities for formatting, maintaining, and optimizing your hard-disk drive. It comes with a benchmarking application and gives you the ability to make minute adjustments in the way your hard-disk drive operates, which can greatly increase performance. Optima Technology's **MiniPACK 8000DAT** by itself is a good storage product, but when bundled with the revolutionary **DeskTape** utility, it becomes a great storage device. DeskTape can mount the 8000DAT's tape drive on the desktop as if it were a hard drive, and directory information is stored on your hard-disk drive, reducing access time. The 8000DAT uses 4:1 hardware compression to further reduce access time and a 1-megabyte buffer to speed throughput.

EDDY WATCH: 1992 CONTENDERS

As soon as we rip open the envelopes and announce this year's Eddy winners, it's time to begin researching next year's awards. Although it's much too early to project the winners, here's a peek at some early contenders for the 1992 Eddy Awards:

Atlas Pro (Strategic Mapping). Combining presentation-quality mapping software with a full-fledged database program, Strategic Mapping has come up with a powerful tool for analyzing geographically oriented data.

BeagleWorks (Beagle Bros). This integrated package should give ClarisWorks a run for the money, and its version of publish-and-subscribe works for System 6 users.

CorrectPrint 300 (RasterOps). This 300-dpi PostScript-compatible dye-sublimation printer raises the stakes in desktop color printing, with its photographic-quality prints, speed, and networkability.

DeltaGraph Professional (DeltaPoint). DeltaPoint's excellent charting program gains presentation skills, including sound support and a run-time function for creating double-clickable slide shows.

Desktop Paintbox (Quantel). The industry standard for high-end color work becomes "the ultimate Mac peripheral" for graphic artists, with unparalleled image-editing features and the ability to manipulate a 45-megabyte color photo *in real time.*

Frontier (UserLand Software). The first nonapplication-specific scripting language on the Macintosh, Frontier promises to be the thread that will tie IAC-aware applications together.

Living Books (Brøderbund Software). This collection of storybooks on CD-ROM allows children to interact with animated characters while helping the kids hone their reading skills.

Lotus 1-2-3 for Macintosh (Lotus Development). Get ready, get set, Excel and Resolve! The race in the spreadsheet-program arena gets hotter as Lotus brings its ubiquitous DOS spreadsheet program to the Mac.

MacWrite Pro (Claris). Better late than never? Maybe. This major overhaul of the venerable word processor adds a plethora of System 7 capabilities, and it may become the ideal tool for creating complex documents.

Magic (MacroMind•Paracomp). This MacDraw-like program has everything you need for creating animated presentations — editable Bézier paths, an animation compressor, stock sounds, and 3-D clip art.

MicroPhone II 4.0 (Software Ventures). Text-based telecommunications comes another step closer to a graphical interface, and a powerful scripting language lets you build custom interfaces.

Multiple Master fonts (Adobe Systems). The latest innovation in PostScript fonts lets you generate, from a single font-outline file, a myriad of typographically accurate fonts of different sizes, weights, and widths.

Muse (Occam Research). This data-analysis tool includes a natural-language query system and a data table that lets you switch rows and columns, employing click-and-drag techniques.

Personal*STATUS (Pharos Technologies). This personal troubleshooting tool alerts you to hardware and software problems and automates the process of checking hard disks for outdated or conflicting software and performing updates.

Premiere (Adobe Systems). This slick video-editing package has a simple graphical interface that enables even inexperienced users to create digital-video sequences — complete with transitions and effects — quickly and easily.

QuarkCopyDesk and QuarkDispatch (Quark). Workgroup publishing finally reaches the Mac. This integrated duo — a text-editing module and a database manager — aren't the first such products, but they might be the most accessible.

SpaceSaver (Aladdin Systems). At last, seamless integration of compression into the Mac environment. Folders and files can be compressed and decompressed quickly and transparently with just a couple of keystrokes.

Video MacToaster (NewTek). The popular Amiga-based broadcast-quality video-effects system gains a Mac interface, a new library of special effects, and a powerful 24-bit modeler/renderer.

VideoSpigot (SuperMac). This is the first card to harness the power of QuickTime and desktop video and offer it at an unbeatable price.

Virtus Vision (Virtus). This 3-D-modeling, visualization, and simulation package supports texture mapping and interacts with HyperCard via System 7's Apple events.

Word 5.0 (Microsoft). Is this the last word? Of course not, but it may be the best. Microsoft manages to make Word more powerful *and* more accessible with goodies such as file-management capabilities, a slick "drag and drop" function, and (finally!) a real user interface for mail-merge.



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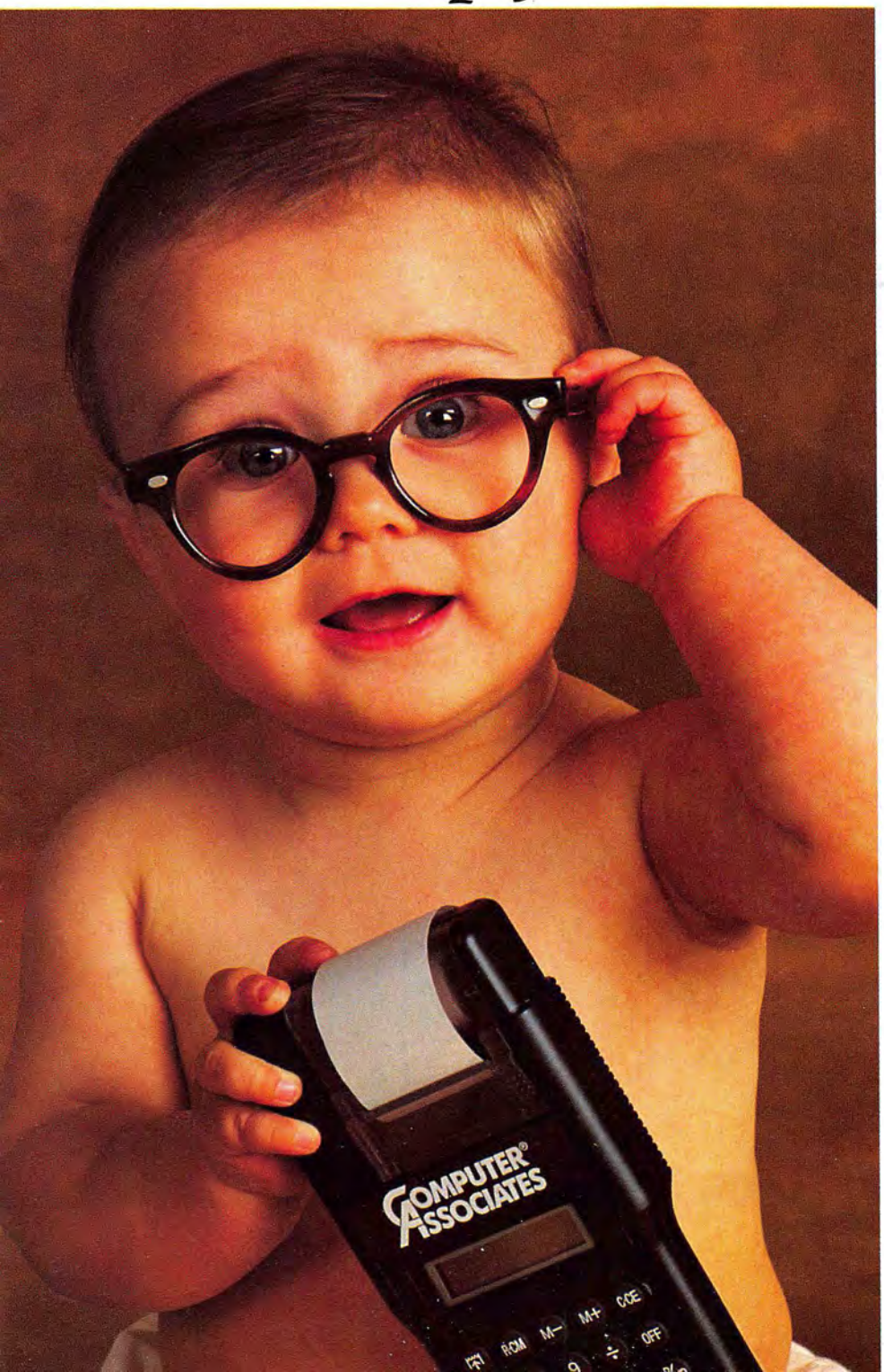
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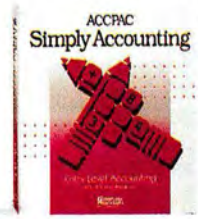
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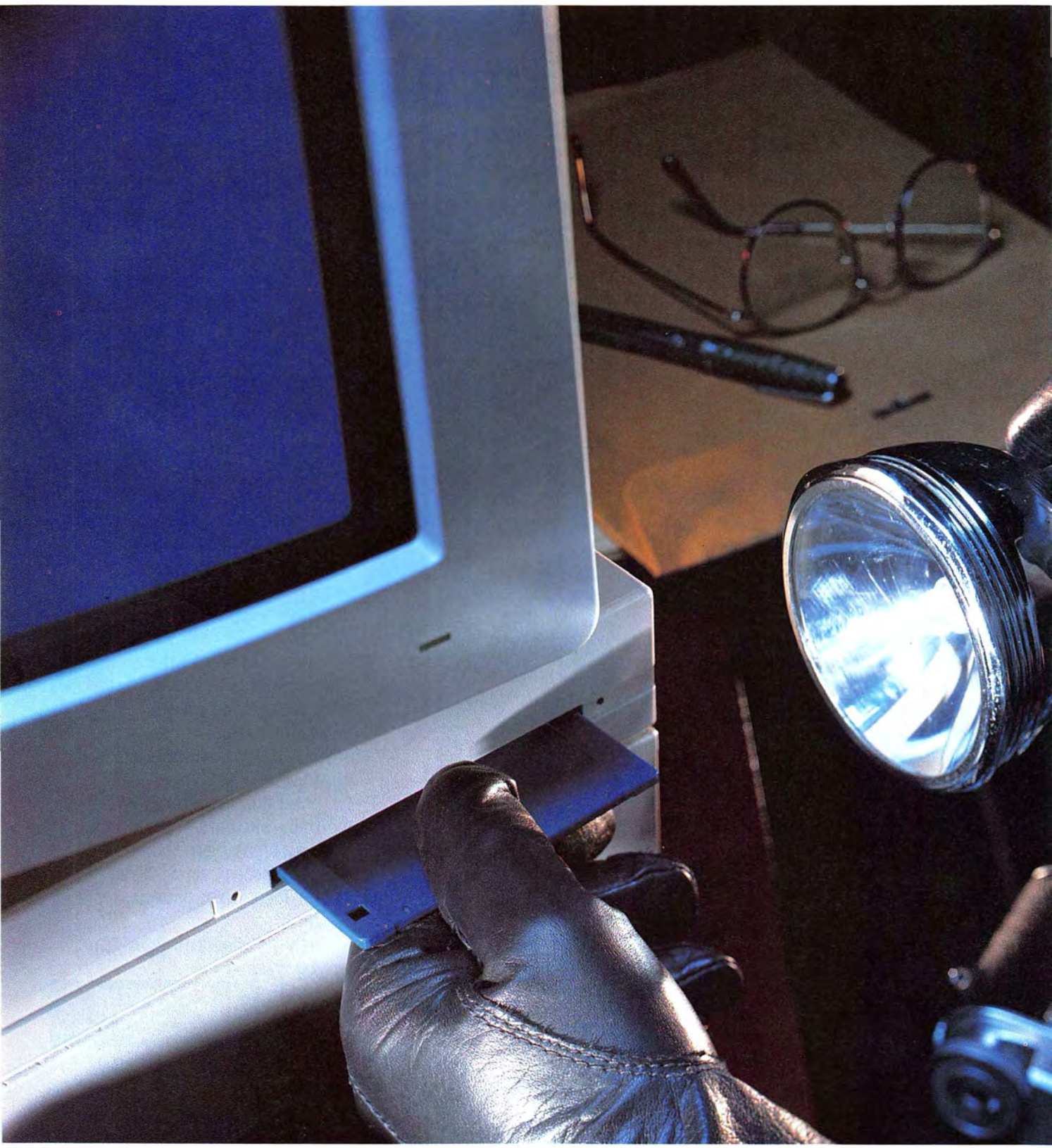
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CIRCLE 115 ON READER SERVICE CARD.





PHOTOGRAPHY: STEVEN UNDERWOOD

CRIME STOPPERS

The Mac may be user-friendly, but that doesn't mean that you have to share your data. The right security strategy can keep your work safe without getting in your way.

Passwords, encryption, hard-drive lockups and lockouts, and locked files — these terms may sound like the trappings of the latest spy thriller, but they've become a part of the Mac experience. *Desktop security* is going to be a term encountered with increasing frequency now that the Mac has entered the business world.

Security precautions come in a variety of forms. On the most basic level, a regular backup schedule and conscientious use of antiviral utilities are de rigueur.

Beyond this initial level, however, a variety of data-security products use one of two approaches: either file-access control (designating who can look at which files on the protected system and what these users can do to them) or hardware-access control (specifying who can insert floppies or boot a particular hard drive).

BY GREGORY WASSON

Most Macs fit into one of four categories:

•Macs that are used by an individual at home.

•Non-networked, single-user Macs in an office.

•Shared Macs in an office or Macs that are exposed to the public in service bureaus, at trade shows, or in computer stores.

•Networked Macs.

The last category is beyond the scope of this article, because networked machines are vulnerable to a variety of threats, including unauthorized dial-in access. Much of the information presented here can apply to networked machines, however.



Safe at Home

Most individuals with a Mac at home don't have to worry about malicious destruction of their data and applications — accidental trashing of files is a far more common disaster. A conscientiously applied backup system and the use of antiviral utilities or perhaps the use of extensions/control panels such as 911's Complete Undelete or Norton Utilities' FileSaver may be the only security you'll ever need. Another tactic is to hide the Trash behind the directory window of your hard disk so that file trashers (including yourself) cannot readily find the Mac's "black hole."

One hardware-based approach is to make it impossible for anyone to start your Mac without a key. Control Power, from Doss Industries ($99.95), is a replacement for your Mac's power cord (see Figure 1). It has special brackets that make it nearly impossible to remove the unit without using considerable force. Once in place, the unit requires that you insert a key to power up your computer.

Other hardware devices we looked at take a somewhat different tack, deactivating the keyboard and mouse with a key. Qualtec Data Products markets the KB-Lock. PC Guardian offers the MacGuardian Keyboard Lock. Both devices are designed so that you plug the mouse in to the keyboard and then plug the keyboard in to the add-on lock box. The lock box plugs in to the Mac's keyboard port. Brackets secure the connection, making it impossible to remove the protection or substitute an unsecured keyboard and mouse. Each unit costs $99.95.

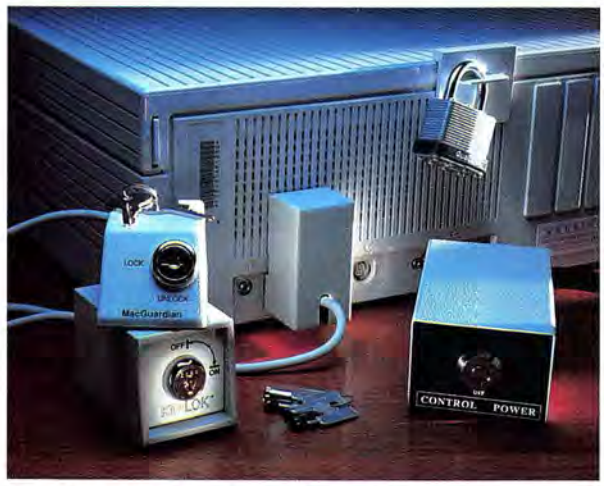


Figure 1: Limiting access to your Mac at home or at work can be as simple as limiting who can turn it on. Control Power puts a key lock onto the Mac's power cord, and the KB-Lock and the MacGuardian Keyboard Lock Model 541 put a lock onto your ADB port.

If you're determined to adopt a software approach to at-home security, look for simplicity: A utility that locks folders or controls access to the hard disk at startup should be sufficient. DiskLock, from Fifth Generation Systems, offers both types of protection. At $189, it's a bit pricey, but it's easy to use. It requires you to enter a password at startup and locks folders and files through encryption. Locked items can't be deleted, so DiskLock protects against unwanted deletions as well as prying eyes.

Kent Marsh offers FolderBolt ($129.95), a simple folder locker that offers some sophisticated features such as a requirement that users change their password at set intervals. Its price might make it attractive to home users, and we



generally found it easier to use than DiskLock. Unlike DiskLock, however, it doesn't make your hard disk secure. Make sure to get version 1.02 for System 7 compatibility.

Another possibility is FolderLocker ($30), from Software Brewing Co. This small utility/extension combo fits well within the budget of most home Mac enthusiasts. It's a snap to use — that's fortunate, because the manual is minimal, to say the least — and its locked folders cannot be trashed. Version 1.2.7 is System 7-compatible.

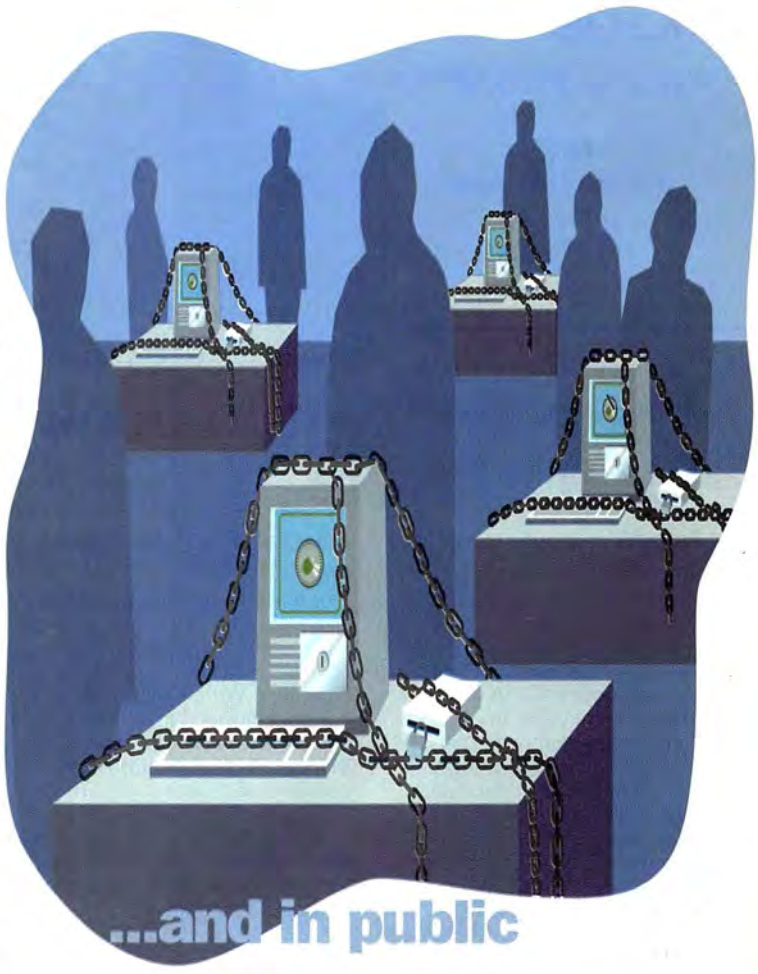
In the Office

If you use your Mac at home mostly for recreational purposes, extensive access control is generally unnecessary and unwelcome. Using a Mac in a business setting is a different story, though. In an office, even when a Mac resides on an individual's desk and is used primarily by that person, convenience sometimes has to give way to other considerations.

As in the previous situation, however, there are some commonsense precautions you can take first, such as using antiviral protection and doing regular backups. Data security is often a matter of not letting people become interested in your Mac. If you leave files open on the desktop, a coworker might not think twice about reading them. Simple screen savers such as After Dark or Pyro! can make the screen less inviting and protect your files if you use their password-based screen-locking features.

The access-control hardware mentioned in the first scenario can also play a role in an office, as can such software equivalents as DiskLock and the various folder-locking utilities. Another product, Praxitel's Passport ($24.95), requires you to enter a password at startup. You can configure it to reject floppy disks, preventing others from copying your files onto them.

Kent Marsh offers QuickLock, a $59.95 product that locks the screen and requires a password to unlock it. This program maintains its security even if a power failure or restart occurs, so it provides considerably more safety than a screen saver's screen-locking feature does. The company also markets NightWatch, a $129.95 access-



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	640 x 480 resolution	640 x 400 resolution
	SCSI cable included**	2400 baud modem/9600 send fax
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The *TRAVLER 880* has 8 Mb of RAM, upgradable to 14 Mb (nearly double the RAM in the Apple PowerBook 170)...enough memory to run almost any Macintosh program. (The *TRAVLER 1480* has a whopping 14 Mb of RAM!) And with its high-speed, high-capacity 80 Mb hard drive, there's plenty of storage.

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The RealTech TRAVLER is fully authorized by Apple Computer, Inc.

It's the best portable solution available. *When has the decision to buy a computer ever been such an open and shut case?*

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"My ad agency got really mad at me about this notebook computer.

Like me, they're very excited about the benefits — and price — of the RealTech TRAVLER. We'd spent a lot of time thinking about what you'd want in a notebook computer. And we invested a considerable amount of time and money figuring out how to improve what was already on the market.

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So why is my ad agency mad? Because I wouldn't give up our prototype model to be photographed. (We only had one TRAVLER in hand when we began work on this ad.)

In less than a week, I became so attached to my TRAVLER that I wouldn't give it up, even for a day. I do a lot of traveling, and it quickly became indispensable to my productivity. I made the agency wait 'til TRAVLERs were rolling off the line, then sent the agency one to shoot for this ad.

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President
Hardware That Fits

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Before returning merchandise, we must ask that you call to receive a returned merchandise authorization number (RMA), which must be included with any product you return. No C.O.D. returns, please. *Prices are subject to change without notice.*



Figure 2: Publicly shared Macs should always have their floppy drives and ports locked to prevent illegal copying and viral infection. Disk Drive Lock, from Secure-It, MacFloppy Drive Lock, from PC Guardian, and PassProof, from Kensington Microware, are a few products that perform this task.

Security on ZiffNet/Mac

If you're on a tight budget or your security needs aren't too sophisticated, you might consider using some of the excellent shareware and freeware security products that are available. ZiffNet/Mac, the on-line service for *MacUser* and *MacWEEK*, offers several in the Download & Support Forum (filenames and library locations are indicated in parentheses):

ChooserUser 1.1

ChooserUser 1.1, by Maurice Volaski, is a 22K freeware extension/control panel that allows you to control who can change the user name in the Chooser DA. It also lets you change the user name at startup, either manually or automatically. This program can be particularly useful in university Macintosh labs. (CHOOUS.SIT, Library 3)

LaserWriterLockOut 1.1

LaserWriterLockOut 1.1, by Maurice Volaski, is a 22K freeware extension/control panel that allows you to control which LaserWriters and other Chooser devices appear in the Chooser DA. This program can be particularly useful in network environments where access to a particular LaserWriter or other Chooser device should be available to specific nodes only. (LWLOCK.SIT, Library 3)

MacPassword 3.8.7

MacPassword, by Art Shumer, is a 144K extension/control panel that password-protects volumes and files. The demonstration version offers limited protection and functions for only 60 days. Virus protection, a screen saver, and other advanced features are enabled after you have paid the $15 shareware fee. (MACPAS.SEA, Library 3)

MacUser Security Set (Loser, Scrambler, Shredder)

The MacUser Security Set is a 48K freeware set of three utilities for protecting your data from prying eyes. Loser makes files invisible on the desktop, Scrambler encrypts files with DES, and Shredder overwrites deleted files so they can't be retrieved. (SECURE.SIT, Library 1)

control product that requires the entry of a password as well as the insertion of a floppy key disk to permit access to a hard disk. It's important to have multiple copies of the user disk — the copies have to be made with the NightWatch Administrator software or they won't work. Given the number of floppies we've seen go to floppy heaven, NightWatch makes us somewhat uneasy. The system administrator must also use Administrator to assign passwords. Kent Marsh also markets the GuardCard, a $189.95 add-in that's roughly equivalent to NightWatch and requires a password at startup. Although it's easy to install, it would also be easy for a nogoodnik to remove, and unlike NightWatch, it works only on internal drives. Another Kent Marsh product is a $24.95 case lock. Qualtec Data Products also offers a CPU case lock; the Micro-Lok costs $69.95.

SuperMac's Sentinel program ($149.95) is an excellent product that offers security for data files and applications through various forms of encryption, ranging from the National Bureau of Standards' DES scheme to a superfast proprietary method called SuperCrypt. But because you can toss Sentinel-encrypted files into the Trash, you might want to combine Sentinel with a file-locking utility. One of the program's best features is its ability to create work sets of files that are locked or unlocked as a group.

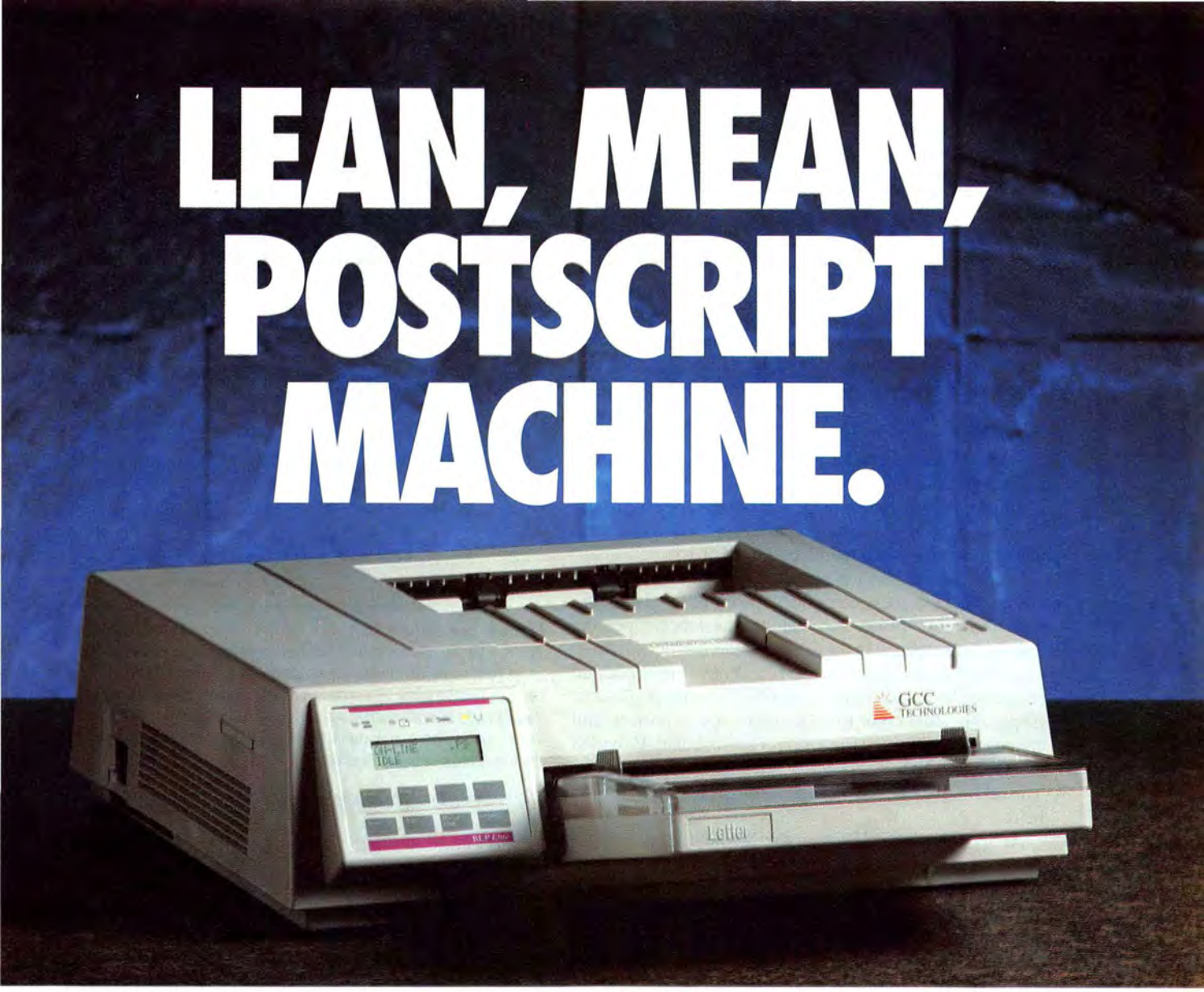
If you're concerned that someone might recover your trashed files, consider Citadel ($149.95), from Microcom. In addition to antiviral protection, DES encryption, and hard-/floppy-drive- and screen-locking features, Citadel offers the Shredder, which ensures that deleted files stay that way.

Passwords are important. You should choose one you can remember but not something obvious such as your name. The ideal way to "choose" a password is to put the selection process outside your control. You can adopt the St. Francis approach: Open the Good Book, and pick a word at random. You can also use the CompuServe method: Choose two unrelated words, and separate them with a special character — *apple+column*, for example. Change your password often, so that even if someone discovers your current password, the discovery will have only limited usefulness.

A relatively new security problem accompanies the use of removable media, such as SyQuest cartridges. In one sense, removables are a boon to security, because you can lock them up or take them home. But it's also simple for anyone to snatch a cartridge in a few seconds. You can, of course, encrypt your files or password-protect cartridges, or you can consider buying one of the removable Winchester drives that are now appearing. We looked at one model, the Disk Pack System, from Mass Memory Systems, which features a key-operated lock on the rear of the chassis that keeps the Winchester hard-disk unit locked in place.

For greater security, take a look at Empower I ($169), from Magna, which boasts an automatic screen-lockout feature, restricts floppy-disk insertion, encrypts files and

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folders, and even monitors computer usage by activity and time spent on the system. The program, a control panel, has a squeaky clean interface and a reasonable price. It provides a decent middle ground between the hard-nosed restrictions programs such as A.M.E. (described later in this article) and the lackadaisical attitude of many Mac users. You can also upgrade to Magna's more advanced Empower II ($296) if your requirements change.

In Public

A Mac that's open to the public or numerous users in an office, store, show, or perhaps a DTP service bureau poses additional security challenges. The issues range from data security to the legal responsibility of companies to secure any commercial software on their hard drives.

In the case of service bureaus, how does a manager ensure that customers can't run off with pilfered applications? System 7 offers fairly simple insurance. Open the Labels control panel, in the Control Panels folder. Double-click on any label color you don't use. Enter *0* in the hue and saturation boxes, and then type *65535* as the brightness. Apply this label color to a file you want to protect, and change the name of the file to one or more spaces. Provided that the file is kept in a folder, it will appear to be invisible. This technique doesn't offer dead-bolt security, but it can help.

An inexpensive solution to the problem of securing a public Mac is to use a commercial folder-locking program to lock the central applications folder. Most of them, such as FolderLocker and FolderBolt, let you run, but not copy, applications from locked folders. Antiviral utilities that automatically scan floppies are essential for any Mac used by the public.

Macs that are accessible to the public at a show or computer store should have their floppy drives disabled. Although several software security products disable floppy-disk insertion, you might also consider a floppy-lockout device. The Disk Drive Lock ($24.95), from Secure-It, and the MacFloppy Drive Lock ($49.95), from PC Guardian, secure your floppy drive with a sturdy insert that can be removed only with a key (see Figure 2). In the same vein, Kensington Microware offers PassProof ($99.95), a hardware/software combo that features floppy- and port-protection features, a screen locker, and user-access tracking.

One of the less expensive commercial kitchen-sink software solutions is SecureInit, a $99.95 Swiss import that's distributed in the U.S. by Direct Software. Although it doesn't let you tailor access privileges to different individuals, it offers so many options — including the ability to lock files and applications, make the System Folder invisible, and disable floppy drives — that it merits consideration. Its main failing is its documentation: The instructions are somewhat confusing, and it has stilted English.

A shared Mac in an office presents another set of

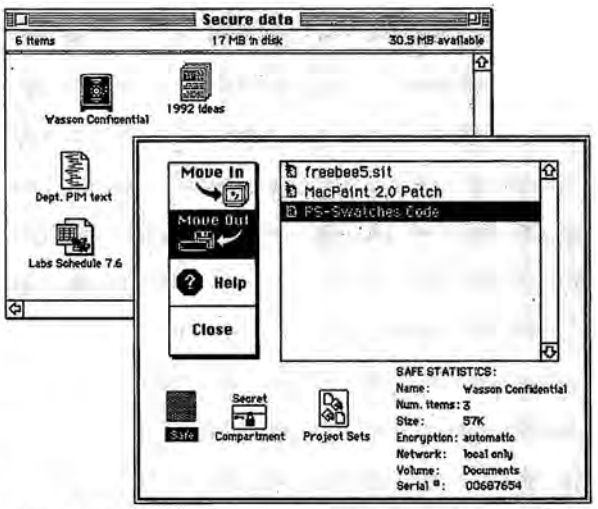


Figure 3: Kent Marsh's MacSafe II creates "safes," or superfolders, that can be opened only when the correct password is entered. The safes (one is shown here in the rear window's upper left corner) can't be thrown away by anyone who doesn't have the password. You can add or remove files from a safe, using the control panel shown here in front. Unfortunately, it's relatively easy to discover the passwords by using ResEdit.

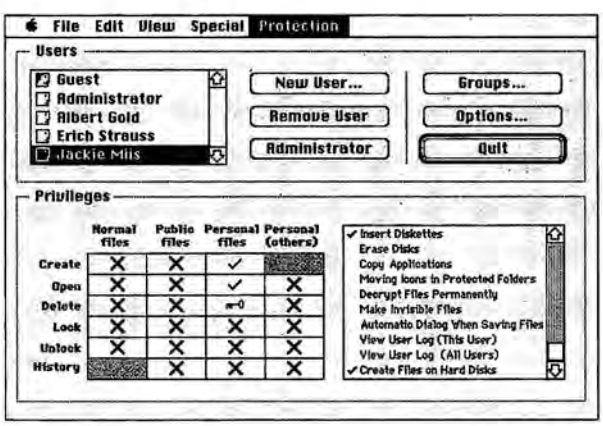


Figure 4: ASD Software's FileGuard offers tremendous ease of use; almost totally transparent operation; and the ability to create users and groups, set folder/file access, and enable or disable most activities for individual users. It's about as much software-based security as you can get in one package.

problems. You'll most likely need to set up different levels of security, depending on who is using the computer at any given time. If the Mac is part of a network, the network software probably has a way to set access privileges, and the same is probably true of your spreadsheet and database programs.

If your Mac is an island, however, there's a wide range of software options. These programs usually function best in situations in which one or two administrators dole out passwords, user names, and privileges.

Kent Marsh's MacSafe II ($189.95) creates "safes," or



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22103K

superfolders, that can be opened only when the correct password is entered (see Figure 3). The safes can't be thrown away without the password, and locking and unlocking is done through a control panel. The program supports drop boxes and DES or proprietary encryption schemes, but it's relatively easy to dig out the passwords with ResEdit — they're encrypted, but just barely.

Magna's Empower II lets you define users and groups and set folder/file privileges based on who is trying to double-click on what.

FileGuard, a $249 comprehensive security product from ASD Software, has long been a favorite of *MacUser* editors. It offers tremendous ease of use, almost totally transparent operation (automatic encryption, for example), and the convenience of adding its own menu to the menu bar. FileGuard lets the administrator create users and groups, set folder/file access, and enable or disable most activities for individual users (see Figure 4). It also lets you copy-protect applications, so pirated copies won't work or will work for only a limited period. FileGuard's volume-protect feature is password-based, but with ASD's optional MaccessCard card reader ($349), users can use their credit cards to log on to the Mac. FileGuard seems to work seamlessly with other software. A problem it had with StuffIt Classic (the shareware version of StuffIt Deluxe) has been fixed in the 2.7 release (which also offers full System 7 compatibility).

A final comprehensive package to look at is A.M.E., a $279 software security system from Casady & Greene. It probably offers more-precise control over your Mac's operating environment than any other product we've examined. An administrator can set almost any access privilege on an individual basis, but it's not a program for casual users. The program is also incompatible with several programs, including disk optimizers and many installer programs. A.M.E. is not System 7-compatible, and Casady & Greene says that compatibility isn't planned for the next major revision.

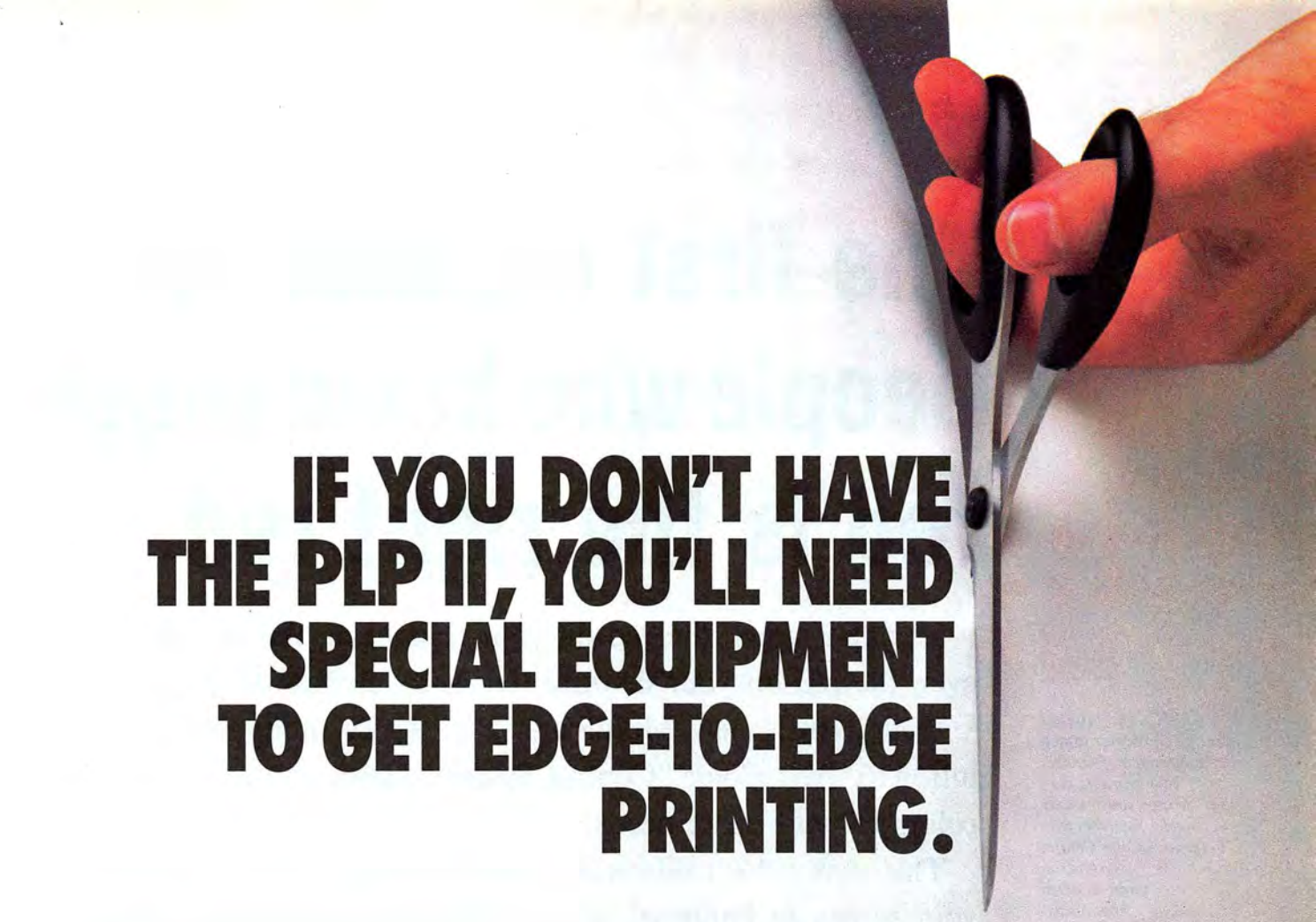
Security doesn't have to mean drudgery, but it does mean valuing your files and data highly. Any of these products can help, but the final success of any security system depends on its administrators and users. So if you think about safety last, that's probably what you'll get.

Gregory Wasson is a *MacUser* contributing editor who has been interested in computer-security issues since he started covering nondisclosed products.

Table 1: Hardware Security Products

	Control Power	Disk Drive Lock	Disk Pack System	GuardCard	KB-Lock
List price	$99.95	$24.95	Disk Pack Chassis 1-slot, $590; 2-slot, $690; Winchester hard drives cost from $860 for a 52-MB unit to $3,990 for a 426-MB unit.	$189.95	$99.95
Minimum requirements			SCSI port		
Company	Doss Industries 1224 Mariposa San Francisco, CA 94107 (415) 861-2223	Secure-It 18 Maple Ct. East Longmeadow, MA 01028 (413) 525-7039	Mass Memory Systems 1414 Gay Dr. Winter Park, FL 32789 (407) 629-1081	Kent Marsh Ltd. 1200 Post Oak Blvd., Ste. 210 Houston, TX 77056 (800) 325-3587 (713) 623-8618	Qualtec Data Products 47767 Warm Springs Blvd. Fremont, CA 94539 (415) 490-8911

	MaccessCard Reader	MacFloppy Drive Lock	MacGuardian Keyboard Lock	Micro-Lok	PassProof
List price	$349	$49.95	$99.95	$69.95	$99.95
Minimum requirements	Mac SE or later, FileGuard				
Company	ASD Software 4650 Arrow Hwy., Ste. E-6 Montclair, CA 91763 (714) 624-2594	PC Guardian 118 Alto St. San Rafael, CA 94901 (415) 459-0190	PC Guardian 118 Alto St. San Rafael, CA 94901 (415) 459-0190	Qualtec Data Products 47767 Warm Springs Blvd. Fremont, CA 94539 (415) 490-8911	Kensington Microware 2855 Campus Dr. San Mateo, CA 94403 (800) 535-4242 (415) 572-2700



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Edge-to-edge printing is just one of the features that set the PLP II apart from the pack. Other features include:

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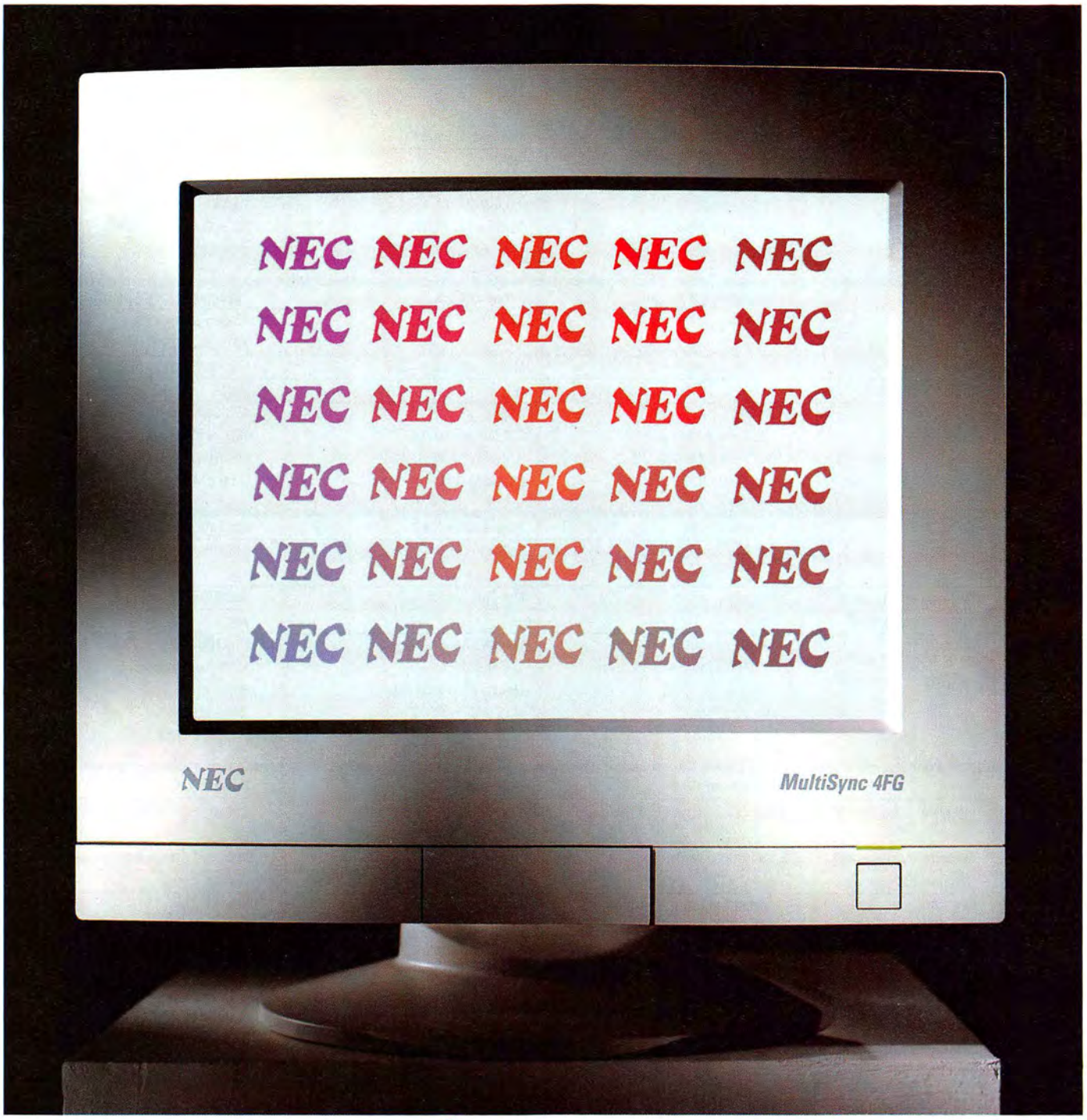
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Table 2: Software Security Products

	A.M.E. 1.1.3	Citadel 1.0	DiskLock 2.1
List price	$279; 5-pack, $895; 10-pack, $1,495	$149.95	$189
Minimum requirements	Mac Plus, System 6.02	Mac Plus, System 6.0	Mac Plus, System 6.03
System 7-compatible?	no	yes	yes
Company	Casady & Greene 22734 Portola Dr. Salinas, CA 92908 (408) 484-9228	Microcom, Inc. P.O. Box 51489 Durham, NC 27717 (919) 490-1277	Fifth Generation Systems 10049 N. Reiger Rd. Baton Rouge, LA 70809 (504) 291-7221
	Empower I 4.0.7	**Empower II 4.0.7**	**FileGuard 2.7**
List price	$169	$296	$249; 5-pack, $795; 10-pack, $1,295
Minimum requirements	Mac Plus, System 4.2	Mac Plus, System 4.2	Mac Plus, System 6.03
System 7-compatible?	yes	yes	yes
Company	Magna 332 Commercial St. San Jose, CA 95112 (408) 282-0900	Magna 332 Commercial St. San Jose, CA 95112 (408) 282-0900	ASD Software, Inc. 4650 Arrow Hwy., Ste. E-6 Montclair, CA 91763 (714) 624-2594
	FolderBolt 1.02	**FolderLocker 1.2.7**	**MacSafe II 2.0**
List price	$129.95	$30	$189.95
Minimum requirements	Mac Plus	Mac Plus, System 6.0	Mac 512Ke
System 7-compatible?	yes	yes	yes
Company	Kent Marsh Ltd. 1200 Post Oak Blvd., Ste. 210 Houston, TX 77056 (800) 325-3587 (713) 623-8618	Software Brewing Co. 270 Apricot Ln. Mountain View, CA 94040 (415) 940-1946	Kent Marsh Ltd. 1200 Post Oak Blvd., Ste. 210 Houston, TX 77056 (800) 325-3587 (713) 623-8618
	NightWatch 1.0.3	**Packer 1.0**	**Passport 2.1**
List price	$129.95	$29	$24.95
Minimum requirements	Mac 512Ke, hard drive	Mac 128K	Mac Plus, System 6.0
System 7-compatible?	yes	yes	yes
Company	Kent Marsh Ltd. 1200 Post Oak Blvd., Ste. 210 Houston, TX 77056 (800) 325-3587 (713) 623-8618	Bobbing Software 67 Country Oaks Dr. Buda, TX 78610 (800) 688-6812 (512) 295-5045	Praxitel P.O. Box 452 Pleasanton, CA 94566 (510) 846-9380
	QuickLock 2.0	**SecureInit 2.5**	**Sentinel 2.2**
List price	$59.95	$99.95	$149.95
Minimum requirements	Mac 512Ke	Mac Plus	Mac 512Ke
System 7-compatible?	yes	no	yes
Company	Kent Marsh Ltd. 1200 Post Oak Blvd., Ste 210 Houston, TX 77056 (800) 325-3587 (713) 623-8618	Direct Software, Inc. 553 North PCH, Ste. B283 Redondo Beach, CA 90277 (213) 798-8400	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202



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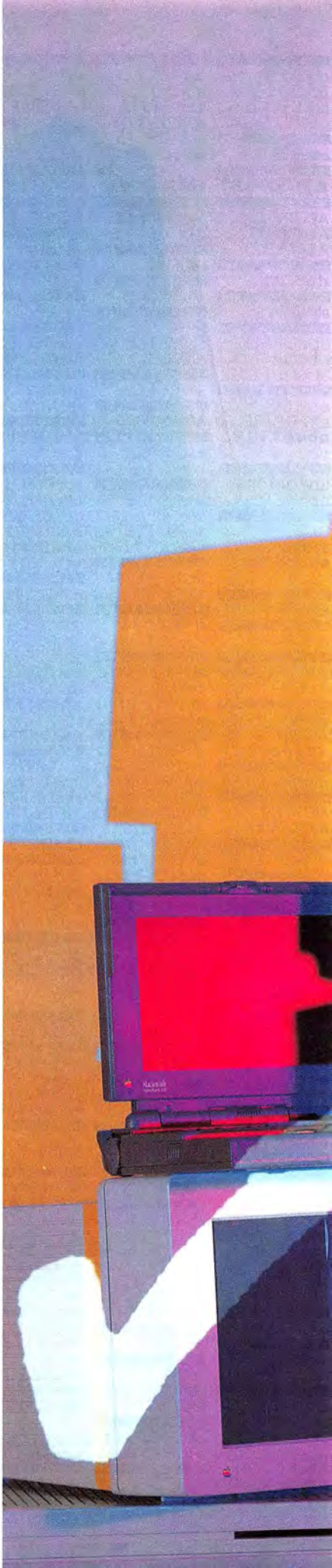
Shopping for the Right Mac

Buying a Mac is a major investment. MacUser Labs provides the information you need for choosing the right one.

BY RIK MYSLEWSKI AND THE MACUSER LABS STAFF

In the beginning, one young rebel flung her sledgehammer at IBM's dominance and announced a single computer with a single name: Macintosh. Apple's mythic ad not only distracted 1984's Super Bowl viewers from their Bud and Pringles but it also kicked off an eight-year spiral of development and diversity.

Twenty new models followed that original Macintosh. Seven million Macs now compete with ten times as many DOS-based machines. Despite the advent of Microsoft Windows, the superiority of the Mac's interface remains clear to all but the most ardent DOS-ophiles. If you are searching for the perfect personal computer, the question isn't "Should I buy a Mac or a PC clone?" but "Which Mac should I buy?"



PHOTOGRAPHY: PIERRE-YVES GOAVEC

A Brave New World

Fortunately, you have far more choices — and are offered much better values — today than at any time since the Mac first appeared. What was once a single line of Macs has blossomed into four distinct series: low-cost Macs for entry-level users and less demanding applications, notebooks for users on the move, modular Macs for business and DTP users, and Motorola 68040-based Quadra powerhouses for users who demand the tops in Mac performance. Choosing a Mac is no longer a simple matter of calling your accountant and buying as much power as your budget allows: Price versus performance is no longer the sole shopping criterion, because several models now list for roughly the same price. Today's Mac purchase is influenced by such factors as portability versus speed, convenient integrated video versus speedy video cards, current performance versus possible expansion, and color versus black-and-white.

Sifting through all these choices isn't as daunting as it might sound. The first step is to write down what applications you plan to run, including those you may add in the foreseeable future. Then, as you continue reading through this article, you can see what hardware is preferred for these applications (see Figure 2). Once you know what you need from your Macintosh, you will have to decide whether to get it all from Apple or whether to buy the minimum configuration and spruce it up with third-party add-ins, upgrades, and peripherals.

Finally, remember that there's a dark side to today's fast-breaking world of ever-increasing choices: Whatever you select, there's a good chance it will be discontinued — the euphemism, of course, is *upgraded* — in the near future. If you want to know what it's like to be left out in the cold, ask owners of a Plus or an SE how they felt about the introduction of the Classic. Or ask Classic owners how they feel about the Classic II. And product evolution is not always upward — the 68030-based Classic II, for example, is a weak replacement for the more powerful SE/30. It's less than two-thirds as fast, even though the two machines use the same type of microprocessor.

The Mac's future looks either bright or confusing, depending on whom you believe and how willing you are to embrace change. Although details are still sketchy, Apple has spelled out some of its plans for the mid and late 1990s: a shift to RISC microprocessors, a new operating system (code-named Pink) that will run on Apple as



Figure 1: The first Macintosh (left) had a paltry 128K of memory and no SCSI port for attaching a hard drive. The Quadra 900 (right), eight years later, can accommodate more than 2,000 times the memory and multiple high-speed storage devices.

Mac 2000

What will tomorrow's Macs be like? Well, for one thing, they won't be Macs. By the turn of the century, the Mac will be a museum piece. And so will the Mac operating system.

Not that there won't be some familiar leftovers. You'll still have icons on your computer screen, for those occasions when you insist on manipulating data manually. But voice commands will be more common. For graphics work, you'll have a pressure-sensitive pen.

Networks will be pervasive, but wires will be antiques. Future Macs will communicate by radio waves, so you'll be connected wherever you go. Your computer will also function as a telephone, fax machine, pager, mailbox, and interactive cable-ready television. Vast quantities of useful information will be instantly available on The Net — a universal hookup to the world's libraries and databases.

You won't buy applications for your Mac either. You'll buy functional modules. You'll be able to assemble them as you do Lego building blocks, to perform precisely the tasks you require. You will train them by performing a task once and telling your Mac to remember how you did it. Of course, all documentation will be on-line, including interactive video tutorials.

You won't have to worry about document formats either. Format translators, when necessary, will automatically ensure that the information you need will be presented properly, regardless of how it was created.

"Out of memory" messages will become a thing of the past. Base configurations will contain 128 megabytes of RAM. For

additional storage, you'll use removable solid-state RAM cartridges, the size of credit cards, that will hold as much as a gigabyte of data each.

You'll be able to use your Mac at your desk if you need to, but you'll be more likely to carry it in your shirt pocket. Some models will hang on the wall of your conference room, where the white board lives today. Pen-based models will replace the artist's easel or the draftman's desktop.

Your computer display will be a full-color flat-panel LCD with a resolution of 150 dpi (dots per inch) or greater. Images will have the clarity of high-definition television. Printing will become a special-purpose activity; most information will be transferred electronically.

And price? You'll be able to get a device with this "basic" capability for less than $1,000, allowing, of course, for inflation adjustments — but you'll have to pay a bit more for the Holodeck option.

— Henry Bortman



MacUser **technical illustrator K. Daniel Clark imagines a hand-held future Mac that includes full-motion video from high-capacity RAM packs, pen-based controls, a printer, and a cellular phone.**

well as IBM computers, the integration of E-mail and multimedia messaging into system-level functions, and an enhanced role for UNIX in its desktop computers. (For our vision of computing in the next century, see the "Mac 2000" sidebar.)

The Basics

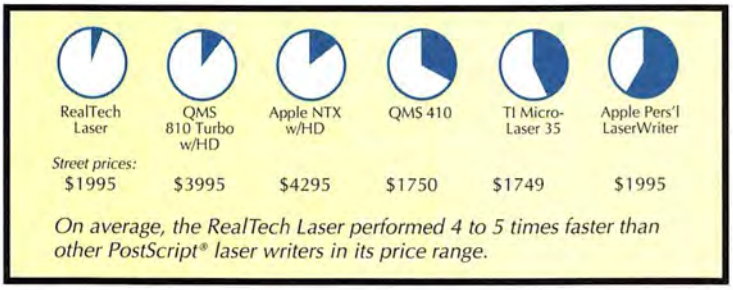
But the future isn't there yet. Today's choices demand an understanding of today's Macs and of the most basic component of any Mac, its *microprocessor,* the silicon chip that manages the whole show. Apple Computer uses microprocessors from the 68000 series, manufactured by Motorola. IBM PCs and their clones use microprocessors from another giant of the silicon world, Intel. This use of different microprocessors is a core reason for the compatibility challenges between the DOS and the Mac clans.

Mac microprocessors come in four distinct, although related, types (see Figure 3). Generally speaking, the farther up the chip is on the evolutionary scale, the higher its performance. The original 68000 is now used only in the Classic (a faster version is used in the PowerBook 100), but it appeared in all Macs released before the Mac II, including the popular SE. The Mac II was the first Mac to use the 68020, which is now used solely in the LC. Apple first used the 68030 in the erstwhile IIx, and it quickly became the flagship of the Mac line: No less than the SE/30, IIcx, IIci, IIfx, IIsi, Classic II, PowerBook 140, and PowerBook 170 followed the IIx's lead. Finally, the Quadra 700 and 900 were the first Macs to use the 68040, a true thoroughbred chip, with more than 17 times the transistors and 10 times the raw power of the original 68000.

There are dozens of important differences among these four microprocessors, but none causes more confusion than their *clock speed* — the number of times per second the chip cycles from process to process. Clock speed is measured in *megahertz* (millions of cycles per second), often abbreviated as MHz. But don't jump to the conclusion that clock speed equals the number of tasks, or useful duties, a chip can accomplish per second. Most tasks require multiple clock cycles, but the more powerful the chip, the more it can do per cycle — one reason why a IIfx with a 40-megahertz 68030 is left in the dust by a Quadra 700 with a 25-megahertz 68040. A 16-megahertz 68000 certainly performs better than an 8-megahertz 68000, but don't expect it to keep up with a 16-megahertz 68030.

Even though the 68000 is beginning to show its age, don't count it out. It's more than adequate for most day-to-day computing duties, such as word-processing, telecommunications, and simple spreadsheet work. When you're typing, for example, your Mac's microprocessor is simply spinning its wheels, waiting for each keystroke. Remember, a microprocessor's world is measured in millions of cycles per second, not words per minute, as is a typist's. Except for its slow scrolling, a 68000-based Macintosh Classic or PowerBook 100 is as effective a word-processing platform as a 68040-based Quadra — if you limit your use of

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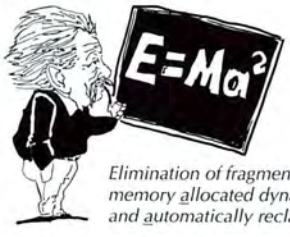
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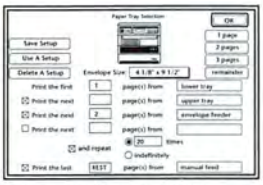
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Pros	Weitek RISC processor	Motorola 68020	Weitek RISC processor	Motorola 68000	Motorola 68000
	9 ppm 8.5x11	8 ppm 8.5x11	6 ppm 8.5x11	9 ppm 8.5x11	8 ppm 8.5x11
	2nd paper tray	—	—	Optional 2nd paper tray	—
	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	—	—	SCSI port
	2 mb RAM (+10*)	2 mb (+32*)	3 mb (+6*)	1.5 mb (+4.5*)	1 mb
	PostScript Level 2	PS Level 2	—	PS Level 1	Quick Draw
Cons	Only available through	Very expensive	Expensive	Slow for graphics	Expensive
	HARDWARE THAT FITS	No 2nd paper tray	No 2nd paper tray	No SCSI port	No 2nd paper tray
	1-800-972-3018		No SCSI port;	Limited to 6 mb RAM	
	Optional env. feeder $269		PS clone	*Optional paper tray $199* *Optional env. feeder $269*	Not PostScript compatible

* = upgradable

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	RealTech Laser	*QMS 2210*	*Hewlett-Packard IIsi*
Price	**$4495**	**$9995**	**$6995**
Pros	Weitek RISC processor	Motorola 68020	RISC-based formatter
	8 ppm 11x17	11 ppm 11x17	
	16 ppm 8.5x11	22 ppm 8.5x11	17 ppm 8.5 x 11*
	2 paper trays	Optional 2nd paper tray*	2 paper trays
	300 or 400 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	
	4 mb RAM upgradable to 16	4 mb RAM	5 mb RAM upgradable to 17 mb
	PostScript Level 2	PS Level 1	PS Level 1
Cons	Limited supply	Very expensive	Expensive
	until 4/92	Limited to 300 dpi	Limited to 300 dpi
	1-800-972-3018	Poor paper handling	No 11x17 output; no SCSI port
		Slow for complex graphics; 4 mb RAM maximum ** Optional paper tray $115*	** Optional double-sided printing costs $695; not practical for most applications*

The ideal networking printers.

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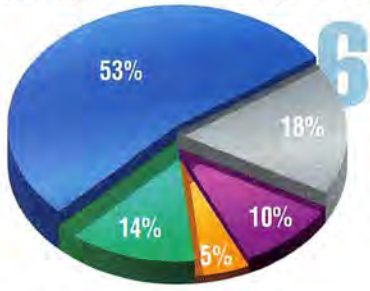
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Figure 2: The Right Mac for the Job

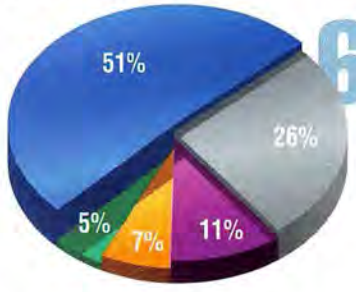
SE, Plus, Classic, Portable (101 respondents)



68000

Our survey showed that the 68000-based Macs — the SE, Plus, Classic, and Portable — are most often used as word-processing stations.

II, LC (57 respondents)



68020

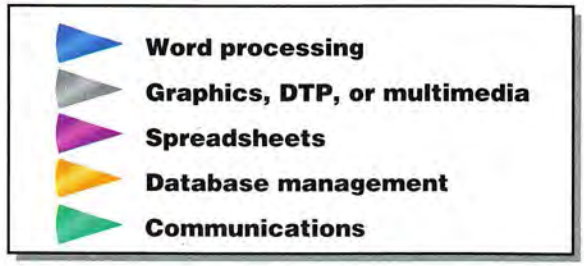
The 68020-based models — the LC and the II — are also popular for word processing, but color capability increases their graphics value.

IIci, IIsi, SE/30, IIcx, IIx, IIfx (234 respondents)



68030

The more powerful 68030-based Macs — the IIci, IIsi, SE/30, IIcx, IIx, and IIfx — are mostly used for graphics, DTP, or multimedia.



Macs in each category are listed in order of their use by respondents. The survey was conducted in November 1991, before the PowerBooks and Quadras had received wide distribution.

Figure 2: We asked users of ZiffNet/Mac, *MacUser*'s CompuServe forum, to tell us which Mac they owned and what type of application they used most often. We then grouped the results by which microprocessor each Mac uses.

Recycled Macs

The word *upgrade* usually implies replacing a Mac's CPU with a faster chip, but it can also denote repackaging the guts of a Mac in a better box. Several vendors are doing just that with some of the 20 current and discontinued Mac models, with or without Apple's blessing.

Perhaps the Outbound Notebook System Series 2000 will become the most popular repackaged Macs. These Mac laptops use only a small piece of the Mac: its ROM. The rest is brand-new, including the microprocessors, which run at faster clock speeds than those in Apple's PowerBooks. The Outbound notebooks are also lighter than the PowerBooks and can display more information on-screen, but they're priced in the same range as Apple's popular notebook computers. For a full review of the Outbound Notebook 2030, one of the System Series 2000, see February '92, page 46. Outbound Systems, Inc., 4840 Pearl E. Circle, Boulder, CO 80301; (800) 444-4607 or (303) 786-8611.

Outgrown your 9-inch screen? Micro Mac can repackage the logic board and drives from your Mac 512Ke, Plus, SE, or SE/30 into a new "slimline" case, complete with a new power supply. (A Classic repackaging is planned.) Options include features not available on some of the original Mac models, such as an internal hard drive, a separate large-screen monitor, and a 68030 accelerator. Micro Mac offers various sizes of monitors, including dual-page

special word-processing features.

Whenever your word-processing application needs to redefine how your page will be formatted — in Microsoft Word's Page View or Tables mode, for example — it's up to your microprocessor to get the job done. In such cases, a faster microprocessor is a big help. If you often use your word processor's more complex functions or if page layout is your game, you'll save yourself a great deal of time and aggravation by choosing at least a 68020- or 68030-based Mac.

The same advice holds true for spreadsheet and database-management applications: If you use only simple, nontaxing functions on small files — and let's face it, we're not all power users nor do we need to be — a low-

monitors for the SE and SE/30 and color displays for the SE/30. Prices start at $725. Micro Mac, 9 Sorbonne, Laguna Niguel, CA 92677; (714) 363-0755.

A company called Sixty-Eight Thousand repackages high-end Macs in an even-higher-end configuration, calling the result the Dash 30fx Workstation. The Dash 30fx uses a IIfx logic board accelerated to 50 megahertz in a tower configuration that includes ten internal slots for storage devices. Options include an accelerated SCSI II coprocessor, a RISC-based video accelerator, and a RAM disk. The Dash 30fx is priced at $11,000 and up; you can upgrade your own IIfx for $3,995. Sixty Eight Thousand, 160 Technology Circle, Scotts Valley, CA 95066; (408) 438-1777.

One inventive company, Hydra Systems, has developed a sneaky way to take a Mac into the most Mac-phobic DOS-based environs. Its ANDOR ONE is a Mac-emulator board that enables an IBM PC with an AT bus to run Mac software. It doesn't include any used Mac parts at all, but *you* are required to supply an official Mac ROM. Don't expect the speed of an Outbound notebook: Hydra promises that ANDOR ONE performance will be just better than that of Apple's bottom-of-the-line Mac Classic. Hydra Systems, 1340 S. Saratoga-Sunnyvale Road, Suite 106, San Jose, CA 95129; (408) 253-5800.

— John Rizzo



Not all Macs are made by Apple. The Outbound Notebook System Series 2030 (left) is a lighter, faster PowerBook competitor — only the ROMs are Apple's. Sixty-Eight Thousand's Dash 30fx Workstation (right) boosts a IIfx motherboard to Quadra quality.

powered Mac will suit you just fine. But if you build complex financial models or if your relational database contains thousands of records, a 68000-based Mac will soon turn you either suicidal or homicidal. Do yourself — and your coworkers — a favor: Buy a faster Mac for your spreadsheet work and a faster hard drive for your database needs. And if you're into severely processor-intensive tasks such as 3-D color modeling and rendering, engineering, or serious scientific number crunching or if your software-development business requires you to frequently perform long compiles, by all means, take out a second mortgage and buy yourself a Quadra with a ton of RAM.

Remember also that you're not necessarily stuck with the microprocessor that's in the Mac you buy (see the "Recycled Macs" sidebar). Apple offers several upgrade options: One especially attractive route is swapping an outdated IIcx motherboard for a Quadra 700 motherboard; you can quadruple your Mac's overall performance for a mere $3,499.

Also, third-party manufacturers offer a wide variety of *accelerators* — cards that slip into a Mac's *PDS* (processor-direct slot) or NuBus slot or that clip directly over the existing microprocessor in slotless Macs. Most accelerators replace the Mac's existing microprocessor with a faster version, thus adding performance without requiring you to replace the entire Mac, drives and all.

Memory Matters

Speed is not the only reason to step up to a more powerful microprocessor. The 68030 and 68040 are not just more powerful than the 68000 or 68020; they also contain the *MMU* (memory-management unit) necessary to take advantage of System 7's virtual-memory feature, which lets you designate a portion of your hard disk as *RAM* (random-access memory, the microprocessor's work space). If you have a Mac II, you can pair a 68851 *PMMU* (paged-memory-management unit) chip with the Mac II's 68020 microprocessor to gain the same advantage. If you own an LC (also a 68020-based Mac), however, you're out of luck; the LC has no socket for a 68851. If you have a 68000-based Mac, you're also locked out of virtual memory; the 68000 has no MMU and supports no PMMU chip.

Apple's implementation of virtual memory is slow — very slow. Connectix, of San Mateo, California, promises to ship an improved version in early 1992 that will be much snappier than Apple's at swapping data on and off the RAM-designated area of your hard disk. Despite its currently pokey performance, virtual memory is a useful response to desktop computing's Basic Law No. 1: You can never have too much RAM.

An abundance of RAM is valuable not just for running memory-hungry programs such as Adobe Photoshop and MacroMind Director. Perhaps more importantly, with a pile of RAM, you can open multiple applications and *leave* them open, either in MultiFinder under System 6 or in the standard multiapplication environment of System 7. It's a tremendous productivity booster to switch back and forth among tasks — revising a spreadsheet in Claris' Resolve, jotting down some text in Microsoft Word, touching up an illustration in Aldus FreeHand, and then importing it all into a QuarkXPress layout — without launching or closing applications.

Because of virtual memory's performance limitations, buy as much

real RAM as you can. Fortunately, RAM is cheap these days — around $40 for a 1-megabyte SIMM (single in-line memory module, the standard form for Mac RAM) or $150 for a 4-megabyte SIMM. But before visions of unlimited RAM overwhelm you, remember that each Mac has a built-in limit and that RAM must be added in groups of SIMMs — or, in the case of PowerBooks, on special *daughtercards* containing expensive pseudo-static RAM (see the "RAM Rules" sidebar).

Also, to access more than 16 megabytes of RAM, your Mac must be *32-bit clean,* and only the Mac IIci and later models come with 32-bit-clean ROMs. There is a fix, however. A system extension called MODE32 removes the 16-megabyte barrier and lets your pre-IIci 68020- or 68030-based Mac access the same amount of RAM (or virtual memory) as the newer models: a whopping 4 *gigabytes* (billions of bytes, or thousands of megabytes). Developed by Connectix, MODE32 is distributed free by Apple, conscientious dealers, user groups, and ZiffNet/Mac (*MacUser*'s CompuServe-based on-line service). If you plan to use multiple memory-intensive applications — especially graphics, sound, or multimedia programs that produce enormous files — get a Mac with 32-bit-clean ROMs or get MODE32.

All 68000-based Macs have one common feature, a monochrome 9-inch screen. This is not simply a matter of economy; it's also a question of performance. Every pixel on a

Figure 3: The 68000 Family

Figure 3: All Macs are based on the same family of Motorola microprocessors: the 68000 series, an ever improving progression of chips named after the number of transistors inside the first. The 68040, used by the Quadra 700 and 900, contains 1,200,000 transistors within its dime-sized dimensions. It also holds a commanding lead over its predecessors in MIPS (millions of instructions per second) and MFLOPS (millions of floating-point operations per second).

Table 1: Video Variety

	Color QuickDraw	Video interface	Built-in 9.8-inch LCD panel (640 x 400 pixels)	Built-in 9-inch CRT (512 x 342 pixels)	12-inch RGB display (512 x 384 pixels)
Low-cost					
Classic	none	internal CRT	NA	1 bit	NA
Classic II	32-bit	internal CRT	NA	1 bit	NA
LC*	32-bit	built-in video	NA	NA	16 bits
Notebooks					
PowerBook 100	none	internal LCD panel	1 bit†	NA	NA
PowerBook 140	32-bit	internal LCD panel	1 bit	NA	NA
PowerBook 170	32-bit	internal LCD panel	1 bit	NA	NA
Modular					
IIsi	32-bit	built-in video	NA	NA	8 bits
IIci	32-bit	built-in video	NA	NA	8 bits
IIfx	32-bit	8•24 NuBus card	NA	NA	24 bits
68040-based					
Quadra 700§	32-bit	built-in video	NA	NA	24 bits
Quadra 900§	32-bit	built-in video	NA	NA	24 bits
Discontinued					
Plus	none	internal CRT	NA	1 bit	NA
SE	none	internal CRT	NA	1 bit	NA
SE/30	8-bit◊	internal CRT	NA	1 bit	NA
II	8-bit◊	8•24 NuBus card	NA	NA	24 bits
IIx	8-bit◊	8•24 NuBus card	NA	NA	24 bits
IIcx	8-bit◊	8•24 NuBus card	NA	NA	24 bits

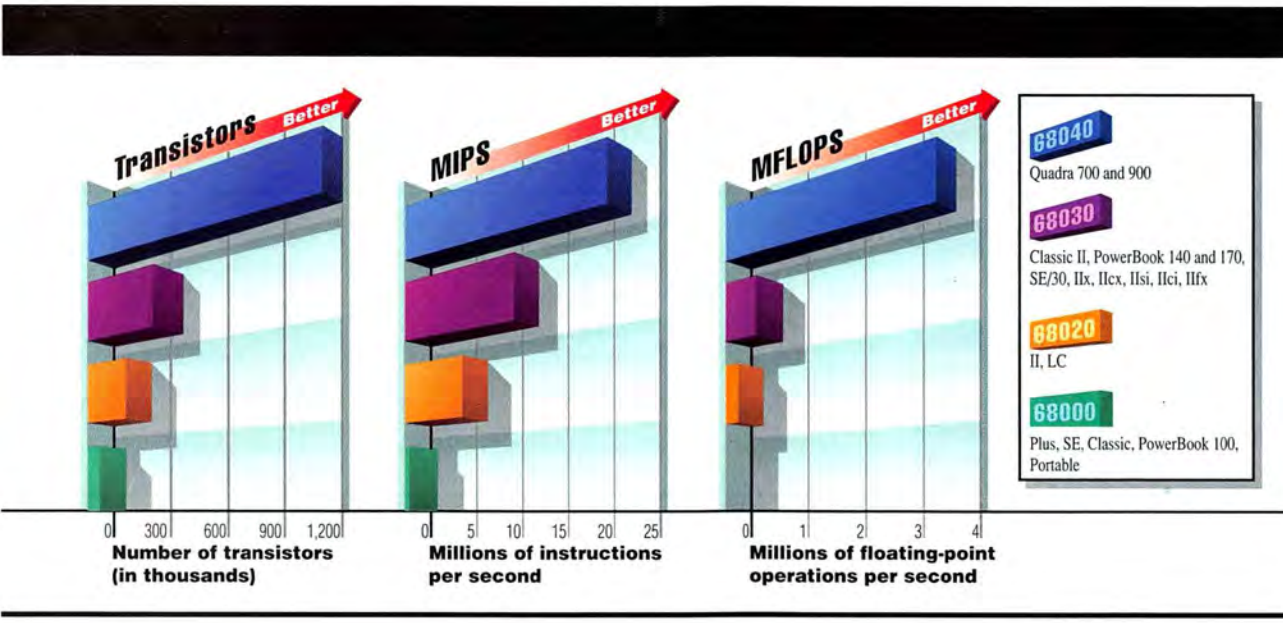
*All LC bit depths are with optional 512K VRAM installed.

†The PowerBook 100's LCD panel has a diagonal measurement of 9 inches.

§All Quadra bit depths are with optional 2-megabyte VRAM installed.

◊Requires 32-bit QuickDraw system extension for color more than 8 bits deep.

**The Apple 8•24 GC NuBus card can support 16-bit color with new ROM and software.



12-inch monochrome 13-inch RGB display (640 x 480 pixels)	Portrait display (640 x 870 pixels)	16-inch color display (832 x 624 pixels)	21-inch monochrome 21-inch color display (1,152 x 870 pixels)
NA	NA	NA	NA
NA	NA	NA	NA
8 bits	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
8 bits	4 bits	NA	NA
8 bits	4 bits	NA	NA
24 bits	8 bits	8 bits**	8 bits
24 bits	8 bits	24 bits	8 bits
24 bits	8 bits	24 bits	8 bits
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
24 bits	8 bits	8 bits**	8 bits
24 bits	8 bits	8 bits**	8 bits
24 bits	8 bits	8 bits**	8 bits

monochrome screen corresponds to 1 bit of information, which is either on (white) or off (black). A Mac that uses 32-bit Color QuickDraw to display a 24-bit-color image, on the other hand, uses a full 4 *bytes* of information (32 bits) for each pixel. (The missing 8 bits —the *alpha channel*—can be used by applications for special effects such as transparency.) The power required to process and display a 32-bit-color image is enormous compared with that needed for a black-and-white 1-bit image. A 1-bit Mac Classic must process only 175,000 bits to display one screen. At the other extreme, a Mac processing a screenful of 24-bit color to display on the new Macintosh 21-inch Color Display System must crunch well over 30,000,000 bits of

Table 1: All but one of the currently shipping Macs include an external monitor or an internal video controller, which drives either an internal CRT or an LCD panel. Only the IIfx, along with the discontinued II, IIx, and IIcx, requires a drop-in NuBus video card.

Each Mac's internal video or 8•24 video card (or third-party equivalent) in the IIfx can provide a variety of video resolutions, depending on the pixel dimensions of the monitor to which it is attached. Only Apple display systems are listed here; third-party equivalents may differ slightly.

color information — more than 175 times the work.

No wonder that even the entry-level color Mac, the LC, uses a 68020 microprocessor, which is much more powerful than the 68000 of the monochrome Classic. Also, unlike the Classic, the LC (like the Quadras) contains sophisticated circuitry that offloads much of the screen-processing duties from the microprocessor and has separate *VRAM* (video random-access memory) to store the information to be displayed on-screen. Both of the Classics and all three PowerBooks require the microprocessor to manage the screen and use main memory (RAM) to store screen information. The IIfx's microprocessor avoids all screen-management duties: It's the only current Mac that has no built-in circuitry; it requires a NuBus video card.

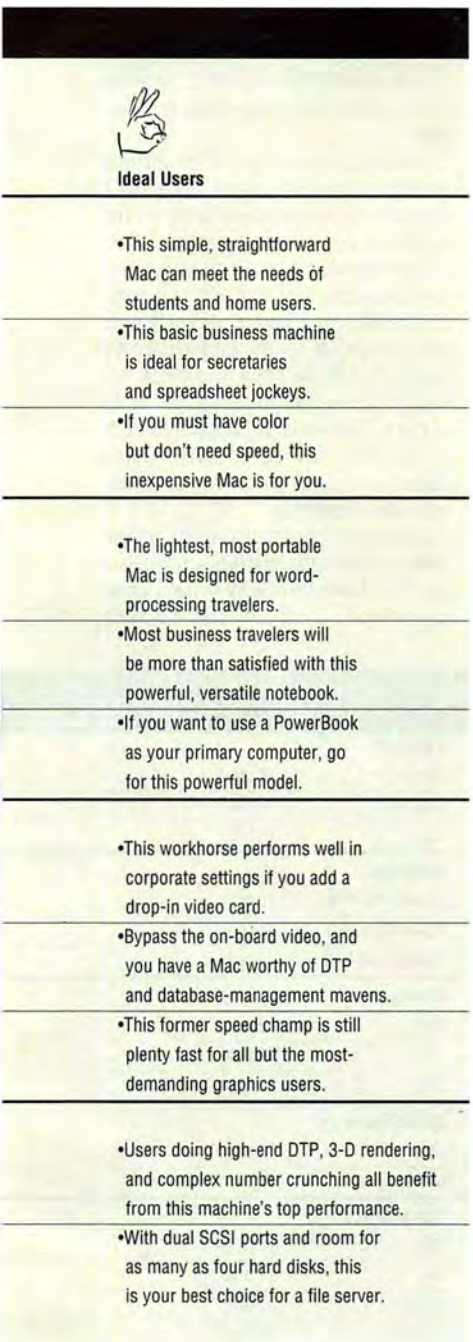
Like the LC and the Quadras, the IIsi and IIci include plug-and-play video, but they require the microprocessor to become intimately involved in all screen processing and use main memory to store video information. The penalty for this is severe (see Figure 4). While the microprocessor is dealing with the screen, it must ignore all other duties. Performance suffers when the monitor is set to its standard 8-bit-color mode. If you choose a IIsi or a IIci, we strongly recommend that you not rely on the machine's internal video. Spend a few extra dollars on an add-in video card — the improvement in performance will be well worth it.

Although you can achieve an increase in performance simply by setting your IIci or IIsi's monitor to 1-bit mode, thus limiting its screen to black-and-white, we'll bet that you won't want to — even when all you're doing is entering numbers into a spreadsheet. Color is not just for graphics; it's an enhancement to the entire computing experience. Color displays are not only more aesthetically pleasing — an advantage not to be taken lightly when you spend most of your day staring into one — but color itself is also an excellent organizational tool. This organizational aspect is a powerful addition to the Finder, and it's also cropping up in information-management applications such as Pastel DayMaker, in which tasks are color-coded by priority.

Different Macs have different color capabilities, depending on their internal video circuitry (see Table 1). When deciding on a color Mac, don't be too quickly seduced by 24-bit color. In most cases — even if you're preparing complex presentations with charts and graphs — 8-bit color should be plenty for your needs. The 256 colors it provides may not sound like much compared with the 16,772,216 provided by

Table 2: The Current Mac Family

	Pros	Cons
Low-cost		
Classic	•Least expensive. •Compact and transportable. •Rugged power supply.	•Slowest current Mac. •Small monochrome display. •No slots, FPU, or PMMU.
Classic II	•Least expensive 68030 Mac. •Compact and transportable. •Sound input.	•Slow 16-bit data path. •Small monochrome display. •No slots or FPU.
LC	•Lowest-cost color. •Apple IIe-emulation-card option. •Sound input.	•No 24-bit color. •Limited expansion. •No FPU or PMMU.
Notebooks		
PowerBook 100	•Almost twice the Classic's speed. •Low cost. •Lightest PowerBook.	•No built-in floppy drive. •20-MB hard drive only. •No video port, FPU, or PMMU.
PowerBook 140	•IIsi-class performance. •Good price for speedy notebook. •Sound input.	•LCD screen inferior to 170's. •No video port or FPU. •No caps-lock indicator (170 also).
PowerBook 170	•IIci-class performance. •Sharp active-matrix display. •Sound input, FPU, and modem.	•Expensive. •No video port. •Short battery life at top speed.
Modular		
IIsi	•Good price and performance. •SE/30 PDS or NuBus slot. •Sound input.	•Slow on-board video uses RAM. •FPU is only an option. •Limited expansion.
IIci	•Three NuBus slots. •RAM-cache card included. •Includes FPU.	•Slow on-board video uses RAM. •No PDS. •Oldest Mac now shipping.
IIfx	•Six NuBus slots. •Built-in cache. •Includes FPU.	•Expensive. •SCSI DMA not enabled. •Large footprint.
68040-based		
Quadra 700	•Very fast and compact. •LocalTalk and EtherTalk ports. •32-bit color with 2-MB VRAM.	•Expensive. •Some software incompatibility. •Doesn't support 2-MB SIMMs.
Quadra 900	•Very fast and expandable. •LocalTalk and EtherTalk ports. •32-bit color with 2-MB VRAM.	•Expensive. •Some software incompatibility. •Doesn't support 2-MB SIMMs.



Ideal Users

- This simple, straightforward Mac can meet the needs of students and home users.
- This basic business machine is ideal for secretaries and spreadsheet jockeys.
- If you must have color but don't need speed, this inexpensive Mac is for you.

- The lightest, most portable Mac is designed for word-processing travelers.
- Most business travelers will be more than satisfied with this powerful, versatile notebook.
- If you want to use a PowerBook as your primary computer, go for this powerful model.

- This workhorse performs well in corporate settings if you add a drop-in video card.
- Bypass the on-board video, and you have a Mac worthy of DTP and database-management mavens.
- This former speed champ is still plenty fast for all but the most-demanding graphics users.

- Users doing high-end DTP, 3-D rendering, and complex number crunching all benefit from this machine's top performance.
- With dual SCSI ports and room for as many as four hard disks, this is your best choice for a file server.

24-bit color, but only specialized applications such as image retouching and high-end graphics really require the broad range of hues and tones provided by high-end color.

And remember, those 24 bits don't come cheap and they require a lot of processing muscle — an accelerated

Figure 4: Performance of the Mac Family

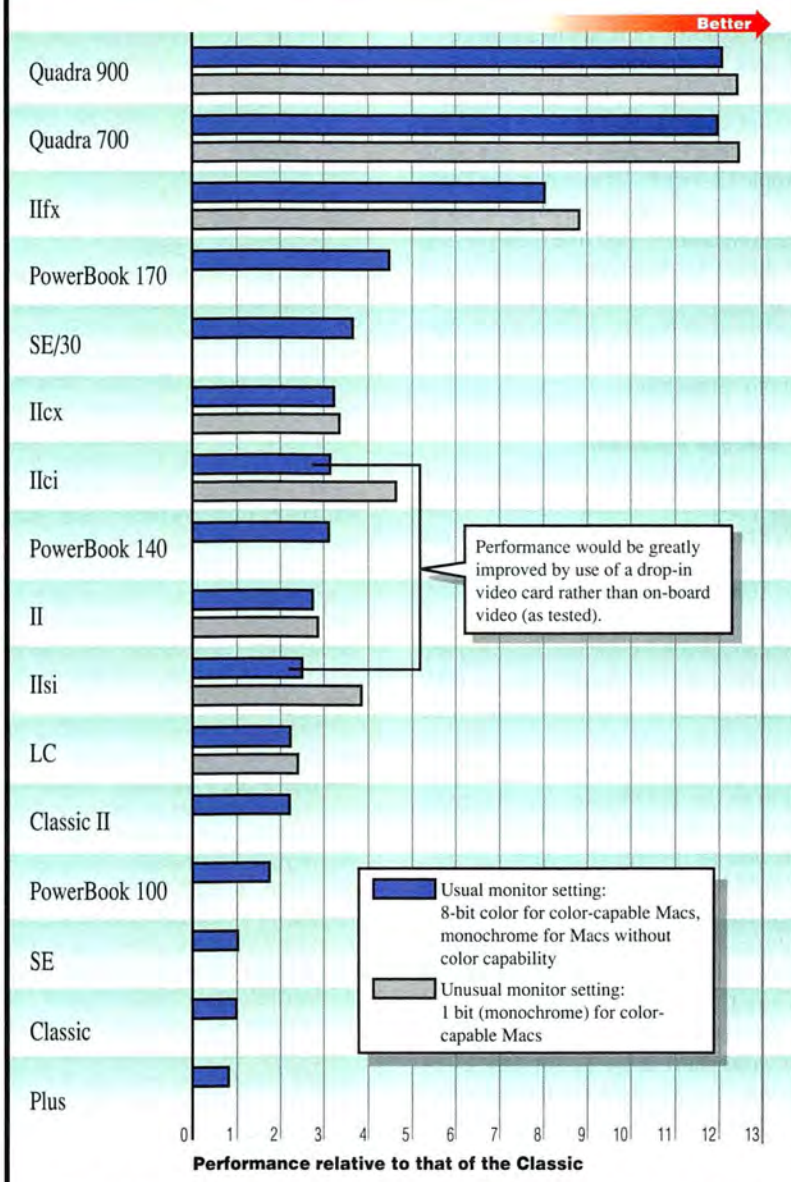


Figure 4: When the Mac was introduced in 1984, you were limited to a single choice: the slow memory-starved floppy-disk-only model. A scant eight years later, 11 Macs vie for your attention.

We compared the current 11 Macs with 5 popular, although discontinued, ancestors. We ran each — with its monitor set to monochrome and, when possible, to 8-bit color — through a battery of processor- and disk-intensive tests involving an Adobe Illustrator 3.0 preview, a complex recalculation in Microsoft Excel, an extensive search-and-replace chore in Claris MacWrite II, and the duplication of a 5-megabyte file by using the Finder.

After we normalized and plotted the results of these tests, we discovered that there's a 12:1 performance difference between the fastest Macs — the two Quadras — and the Classic. We also discovered that the on-board video of the IIsi and IIci severely hampers their performance when these two otherwise-speedy Macs are set to their standard display mode of 8-bit color.

24-bit video card is well worth the extra $2,000 or so you'll have to pay. And you'll need a NuBus slot for that card, so don't think about 24-bit color if you're planning to buy an LC. However, Apple offers a compromise: an optional 512K VRAM SIMM for the LC that provides 16-bit color on an Apple 12-inch RGB monitor (see Table 1). A 16-bit-color system gives you 32,768 colors — you'll be hard-pressed to detect the difference between it and a 24-bit-color system, unless you're involved in highly demanding color-graphics work such as rendering and photo retouching.

Storage Solutions

If you're thinking about color, soon you'll also be thinking about a new and bigger hard drive. Color images are large: A 24-bit image can easily gobble up 10 to 20 megabytes of disk space. Recognizing this, Apple offers 160-megabyte drives for the IIfx and the Quadras, and it should have a 400-megabyte drive available by the time you read this.

In general, the hard-drive rule is akin to the RAM rule: Get the most storage space you can afford, even if all you're buying is a Mac Classic. You'll be surprised at how fast a hard disk can fill up, and the time you spend swapping files to and from your hard disk from a floppy archive is time wasted.

Remember also that the performance of your hard drive — or any SCSI device — depends on the speed of your Mac's SCSI port (see the "SCSI Secrets" sidebar). If you regularly use large graphics, sound, or video files or if you need to equip a file server or database server, hard-disk access is a consideration — buy a Macintosh with fast SCSI, and you'll never regret the cost. Time is money.

If you can avoid it, don't buy a hard drive from Apple. Although Apple's drives are consistently good performers and are exceedingly well built, they are also rather expensive. Apple's 80-megabyte Hard Disk 80SC, for example, lists for $1,099. Compare that

RAM Rules

There's one simple rule to follow when you decide how much RAM you need: The more, the merrier — and with System 7, you can access more than 8 megabytes of memory. Fortunately, when you install higher-capacity RAM SIMMs in your office's high-end Macs, you can distribute the left-over lower-capacity RAM SIMMs to your office mates. Swapping RAM between Macs is, almost literally, a snap.

There are exceptions, however. Even though all Macs from the Plus on — except for the PowerBooks and the Portable — use SIMMs, the IIfx requires a special variety that doesn't work in other Macs. With the exception of the rare *parity SIMMs*, required in some government machines, all Macs that use SIMMs use the standard 8-bit variety — that is, SIMMs that hold and transfer information 8 bits at a time. Macs have either a 16-bit or a 32-bit *data path* — that is, they transfer information from their memory to their microprocessor 16 or 32 bits at a time, depending on the model. To fill this path evenly, SIMMs are installed either in pairs (16 bits) or in quartets (32 bits) of the same capacity.

The key to knowing which SIMMs work in which Macs is in the product codes stamped on the RAM chips; they tell you how big and how fast the chips are. RAM chips often have a part number stamped on them that indicates their size — for example 256, 1000, or 4000, for 256 kilobits, 1 megabit, or 4 megabits, respectively. Another number, usually in the range of 70 to 150, indicates the speed of the chip — how quickly it can load or unload 1 byte of data — in nanoseconds. If the part numbers on your SIMMs don't decode easily, ask your SIMM's manufacturer to decode them for you.

Multiply the number of chips by the capacity of each, and you get the total capacity of the SIMM. For example, a 1-megabyte SIMM usually contains eight 1-megabit chips, for a total of 8 megabits, or 1 megabyte (remember, a megabyte is 1,024,000 bytes, *not* 1,000,000 bytes).

Unless you're using SIMMs larger than 1 megabyte, you need concern yourself only with how fast the memory is and whether or not it will fit physically in the spaces inside the Mac. In compact Macs, such as the SE and SE/30, "tall" RAM made from older *DIP* (dual in-line package) chips doesn't fit; you need newer SIMMs made from low-profile *surface-mount* chips. In general, RAM that works in faster Macs also works in slower Macs.

The Mac Classic comes with 1 megabyte of RAM on the motherboard, along with a slot that accepts a memory-expansion card. Apple's card includes 1 megabyte of RAM and two SIMM slots. Leave the slots empty for a 2-megabyte system; fill them with 256K SIMMs for 2.5 megabytes of RAM or with 1-megabyte SIMMs for the Classic's maximum RAM limit of 4 megabytes. The Plus and SE use two 16-bit memory banks — that is, two sets of two SIMM slots each. All four slots can accept SIMMs with a capacity of 1 megabyte or less, for a maximum of 4 megabytes.

The Classic II and the LC include 2 megabytes of RAM on the motherboard and have one 16-bit bank of two SIMM sockets, which can accept 1-, 2-, or 4-megabyte SIMMs,

	Data path
Low-cost	
Classic†	16 bits
Classic II	16 bits
LC	16 bits
Notebooks	
PowerBook 100	16 bits
PowerBook 140	32 bits
PowerBook 170	32 bits
Modular	
IIsi	32 bits
IIci	32 bits
IIfx	32 bits
68040-based	
Quadra 700	32 bits
Quadra 900	32 bits
Discontinued	
Plus	16 bits
SE	16 bits
SE/30	32 bits
II	32 bits
IIx	32 bits
IIcx	32 bits

for a total of 4, 6, or 10 megabytes. The Mac IIsi includes 1 megabyte on the motherboard and one 32-bit bank of four SIMM sockets, which accepts SIMMs as large as 16 megabytes, for a maximum total RAM configuration of 65 megabytes.

The SE/30, II, IIx, IIcx, and IIci can also accept SIMMs with a capacity as large as 16 megabytes. However, Macs in this group older than the IIci are not *32-bit clean*—that is, the Memory Manager in their ROMs is not capable of handling RAM of more than 16 megabytes. They require an Apple-supplied system extension called MODE32 to support more than 16 megabytes of RAM. With the exception of the Mac II, all these Macs have two 32-bit, four-slot SIMM banks and support as much as 128 megabytes of RAM. The Mac II is limited to 68 megabytes until you install an FDHD (floppy disk, high density) SuperDrive upgrade, which comes with the newer ROMs that are required to support 128 megabytes.

The Quadra 700 includes 4 megabytes of RAM soldered onto the motherboard; the Quadra 900 has no RAM on the motherboard itself but is shipped with 4 megabytes of RAM in slots. The Quadra 700 has one 32-bit four-slot SIMM bank; the Quadra 900 has four banks. When fully loaded with 16-megabyte SIMMs, these machines support 68 megabytes and a hefty 256 megabytes, respectively.

The PowerBooks come with 2 megabytes of RAM on the motherboard and have a single connector for a special RAM *daughtercard*. Currently, daughtercards containing as much as 6 megabytes of low-power *pseudostatic* RAM are supported. At press time, Apple was having trouble filling orders for the 4-megabyte daughtercards and had not announced a 6-megabyte daughtercard. Other vendors — Computer Care, of Minneapolis, Minnesota, and Newer Technology, of Wichita, Kansas, for example — are shipping 2-, 4-, and 6-megabyte daughtercards that raise a PowerBook's memory to 4, 6, and 8 megabytes of RAM. When shopping for PowerBook RAM, remember that the chips must be of low-profile design or the daughtercard may not fit properly.

— Jeff Pittelkau

Table A: You can never have too much RAM. Depending on the type of SIMM you use, you can load a maximum of 4 megabytes into your Classic or 256 megabytes into your Quadra 900. Remember: If you have a Mac with a 16-bit data path, you must install pairs of SIMMs; a Mac with a 32-bit data path requires SIMMs in groups of four.

Min. RAM speed (nanoseconds)	Number of SIMM slots	RAM on motherboard	Maximum RAM when all SIMM slots are filled with SIMMs of this type: 256K	1 MB	2 MB	4 MB	16 MB*
150 ns	2	1 MB	2.5 MB	4 MB	NA	NA	NA
100 ns	2	2 MB	NA	4 MB	6 MB	10 MB	NA
100 ns	2	2 MB	NA	4 MB	6 MB	10 MB	NA
100 ns	1§	2 MB	NA	NA	4 MB	6 MB	NA
100 ns	1§	2 MB	NA	NA	4 MB	6 MB	NA
100 ns	1§	2 MB	NA	NA	4 MB	6 MB	NA
100 ns	4	1 MB	2 MB	5 MB	9 MB	17 MB	65 MB
80 ns	8	none	2 MB	8 MB	16 MB	32 MB	128 MB
80 ns	8	none	2 MB	8 MB	NA	32 MB	128 MB
80 ns	4	4 MB	NA	8 MB	NA	20 MB	68 MB
80 ns	16	none	NA	16 MB	NA	64 MB	256 MB
150 ns	4	none	1 MB	4 MB	NA	NA	NA
150 ns	4	none	1 MB	4 MB	NA	NA	NA
120 ns	8	none	2 MB	8 MB	NA	32 MB	128 MB
120 ns	8	none	2 MB	8 MB	NA	32 MB	68 MB◊
120 ns	8	none	2 MB	8 MB	NA	32 MB	128 MB
120 ns	8	none	2 MB	8 MB	NA	32 MB	128 MB

*Although 16-megabyte SIMMs can be used in 68030- and 68040-based Macs, Apple has not yet published their acceptable ranges of physical (heat and size) properties.

†The Classic's RAM-expansion capacity reflects the use of Apple's memory-expansion card, which has 1 megabyte soldered on-board and two SIMM slots.

§The PowerBooks contain a single socket for a daughtercard containing 2, 4, or 6 megabytes of pseudostatic RAM; they do not have a SIMM slot.

◊The Mac II can support 128 megabytes of RAM after installation of an FDHD upgrade, which includes new ROM chips.

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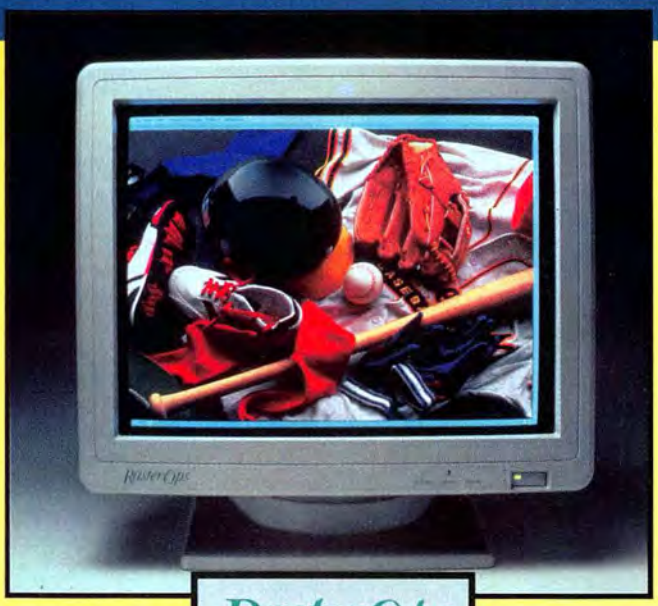
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Mac II, IIx, IIcx, IIci, IIfx, Quadra 700 & Quadra 900	24-bit system (accelerated)	$2899

**IIsi solution retains PDS slot for the RealTech cache card.*



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TV Tuner	335
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ClearView Classic 21"	1639

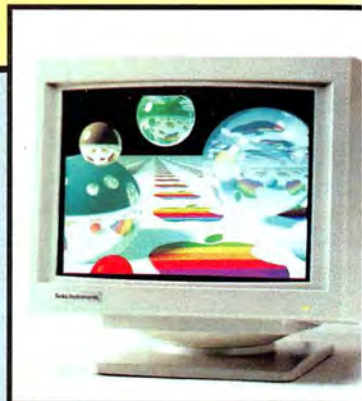
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SB-1300NP	3.7	4699
SBT-1288NP	3.1	5579
SBT-2600NP	3.8	9029
SB-606NPR	3.6	4649
SB-1288NPR	4.1	6229
SB-2600NPR	4.4	9679
SB-2700NPR	4.4	8869

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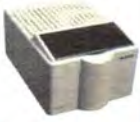
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Q9i-828R	4.1	3679
Q9i-1030R	5.2	4029

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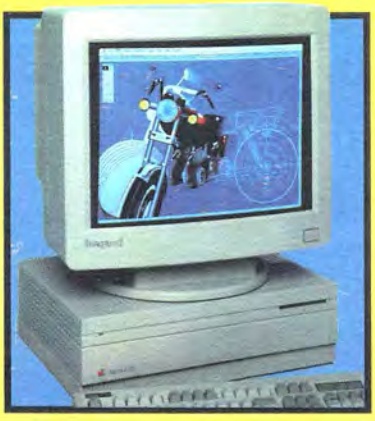
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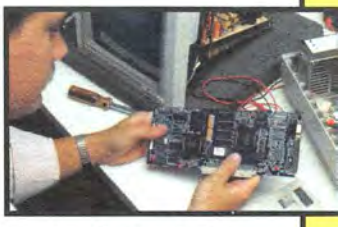
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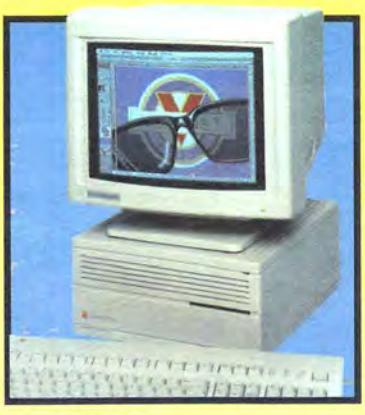
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with a solid, reliable 100-megabyte drive from Alliance Peripheral Systems, Hard Drives International, or one of the many other reputable direct-mail houses, and you'll find that you can buy two mail-order drives for the cost of one Apple drive.

And don't limit yourself to hard drives. A large selection of removable-cartridge drives is available at good prices (see "Magnetic-Cartridge Drives: The Next Generation," January '92, page 126, and "Double-Duty Drives: Multifunction Optical Storage," November '91, page 108), and more are appearing every day, with the advent of 3.5-inch 128-megabyte optical drives. Removable-cartridge drives — such as those manufactured by SyQuest and Iomega — not only offer unlimited storage but are also ideal for quick and easy backup, effortless archiving, hassle-free security, and flexible startup options.

On the Road Again

One of the advantages of removable-cartridge drives is that you can pack multiple megabytes of work onto a cartridge, carry that cartridge to another Mac across town or across the country, slip it into a compatible drive, and resume your work. Although that's a convenient way to transport files, how do you continue working while in transit? Simple: Get a PowerBook.

The 68000-based PowerBook 100 is more than adequate if writing is your on-the-road occupation, but its lack of an internal floppy-disk drive can be inconvenient: What if you want to swap files quickly with a client? And, heaven forbid, what if you have to reinstall your system while you're away from home? Of course, you can take along Apple's optional external floppy drive, but doesn't that defeat the whole purpose of a convenient, portable Mac?

The PowerBook 140, with its fast 68030, internal floppy drive, and slightly larger screen is well worth the additional $400 and one and a half pounds. The PowerBook 170 is essentially a souped-up version of the 140, with a faster microprocessor, an improved display, a math coprocessor, and an internal data/fax modem. If your budget allows, get the PowerBook 170; otherwise, stick with the PowerBook 140.

And don't completely discount the IIsi and the LC as road warriors. Although not true portables, they're quite adequate *transportables* if you have monitors and power waiting for them at remote locations, which is likely if you're doing presentations. An inexpensive second monitor makes the LC an ideal take-home machine.

Finally, consider this heretical idea: Buy a DOS laptop. If all you do is word processing, an inexpensive DOS-based

SCSI Secrets

Every Mac since the Plus uses SCSI (Small Computer Systems Interface), a popular method of connecting computers and peripherals, to communicate with hard drives, scanners, CD-ROM drives, optical drives, and other external devices. SCSI is your Mac's fastest connection to the outside world, but not all SCSI ports are created equal (see Figure A). If your work calls for the frequent transfer of large files to and from your hard drive, pick a Mac with the fastest SCSI port you can afford. Surprisingly, the IIsi and IIci outrace the otherwise speedy IIfx, although the two Quadras are the hands-down winners.

SCSI, Macintosh style, was originally introduced to answer the prayers of those who had purchased Apple's original hard drive for the Mac — the Hard Disk 20 — and found its serial-port interface abysmally slow. As Apple rushed to get the SCSI-equipped Plus ready for market, it chose to adopt only a subset of the full industry-accepted SCSI specification. Unfortunately, Apple's deviations from the standard imposed a maximum speed limit on the Mac's SCSI bus — a speed limit that wasn't apparent at the time, because the modest processing power of the Mac Plus was a good match for early SCSI hard drives.

Macs as well as hard-disk drives have steadily improved, however, and the Mac's SCSI implementation is now being pushed to the limit. All pre-Quadra Macs use the 53C80 SCSI controller chip, which has a top speed of about 2 megabytes per second — far slower than that of some of the speedier hard-disk drives now entering the market.

Although the Quadras sport the more powerful 53C90 SCSI chip, they are still outpaced by the fastest SCSI drives available today. But don't blame the hardware alone. The real obstacle to faster SCSI throughput is Apple's SCSI Manager, system software that is due — long overdue, we believe — for the rewrite that Apple is now developing. The updated SCSI Manager will not only increase performance but will also allow for convenient features that have always been missing from the Mac, such as the ability to continue editing a document on one hard drive while formatting a separate hard drive off-line. Users of high-end Macs will finally see SCSI speeds and features long enjoyed by workstation users. The most dramatic effects of faster SCSI will be an increase in the performance of high-end graphics programs and network file servers and an improvement in the lives of users who rely heavily on virtual memory.

At least one SCSI-device manufacturer — MicroNet Technology, of Irvine, California — has decided not to wait for Apple's upgrade of the SCSI Manager. MicroNet synchronizes two fast hard drives and controls them with its own version of the SCSI Manager, written with Apple's blessing, to take advantage of the Quadra 900's twin 53C90 SCSI chips. By splitting the entire file system between the two drives and by writing to both drives simultaneously, MicroNet's Raven series of hard-drive subsystems achieves SCSI throughput of more than 7 megabytes per second.

Also, an update of the SCSI standard, SCSI-2, is now being finalized. Two elements of this standard, dubbed Wide SCSI and Fast SCSI, have the capacity to raise SCSI throughput to as much as 20 megabytes per second. Not many drives will support this sustained transfer rate initially, but a few — such as the Wren Elite III, from Seagate — are already beginning to appear. As long as the SCSI standard can keep pace with the next generation of CPUs, SCSI will be with us for years to come.

— Jeffy Milstead

notebook computer can save you a lot of money. Just get a good Mac-to-PC file-transfer utility — MacLinkPlus/PC from DataViz, of Trumbull, Connecticut, for example — and you're all set. But, please, don't tell the laptop salesman that you got the idea from *MacUser*.

The Choice Is Yours

Whether your Mac slips into your briefcase or stands upright on the floor next to your desk, the choice of where to buy it — and the peripherals that accompany it — can be as important as the choice of which Mac to buy. Don't assume that a traditional full-service dealer will give you the best value for your dollar. Dealers can help analyze your needs and recommend the appropriate system for the applications you choose, but you pay — in higher prices — for these niceties.

The latest trend in computer sales is the so-called superstores — the CompUSA and Bizmart chains, for example. Make sure that the superstore you choose guarantees quick turnaround in case your purchase fails during the warranty period, and you'll be fine. You won't get much help in deciding what to buy, but because you're a *MacUser* reader who's just digested this article, you're as well informed and up-to-date as most salespeople are. Before you go shopping, download Which Mac Should I Buy? (WchMac. SEA), a HyperCard-based summary of this article, from Library 7 in the reference area of ZiffNet/Mac, and match your needs with its suggestions. In fact, give a copy of the stack to the salesperson; it never hurts to be an ambassador of knowledge.

And, as mentioned earlier, don't neglect mail order — known in these euphemistic times as direct marketing — when you shop for hard drives, printers, and other peripherals. Great deals can be found, and the better outfits offer service and support that rival those of the best mom-and-pop computer dealers. The final hundred pages of this magazine is a good place to begin shopping for a reputable mail-order house — but then check a year-old copy to find out if the company has been in business long enough to deserve your confidence.

However and whatever you choose to buy, rest assured that your new Mac will be a well-built machine that will be useful for years. Mac models may come and go, but many a Macintosh — the full name of that original 128K 68000-based machine that took us all by storm in 1984 — is still providing its users with all the power they will ever need.

Rik Myslewski is a *MacUser* senior editor and the director of MacUser Labs.

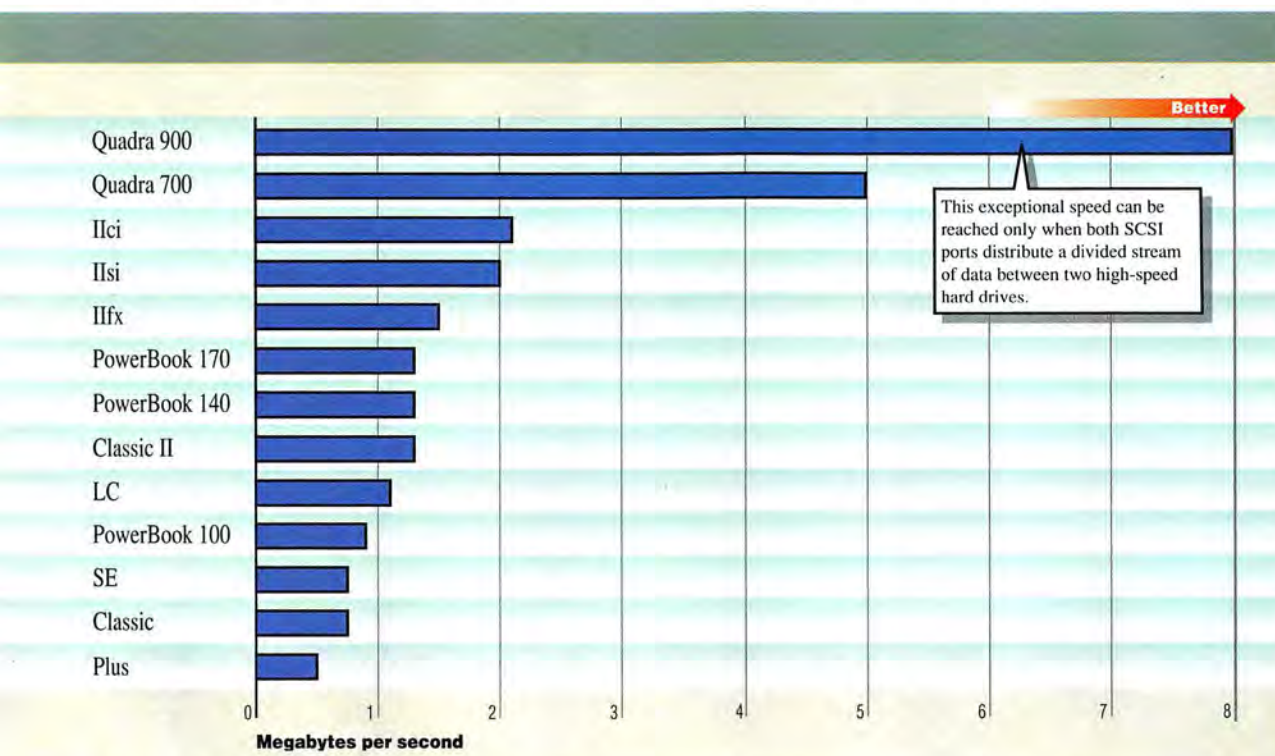


Figure A: Measuring maximum SCSI speed — how fast your Mac can blast data to and from its hard drive — is an arcane and contentious art. Put four SCSI experts in a room, and they're sure to come up with a dozen different estimates. Nevertheless, the speeds shown here are reliable estimates of the maximum throughput of each Mac's SCSI port.

Table 3: Features of the Current Mac Family

● = yes ○ = no	Low-cost  Classic	 Classic II	 LC
List price (RAM/drive)	$999 (1 MB/SuperDrive) $1,499 (2 MB/40 MB)	$1,899 (2 MB/40 MB) $2,399 (4 MB/80 MB)	$2,499 (2 MB/40 MB) $2,999 (4 MB/80 MB)
Street price (RAM/drive)	$825 (1 MB/SuperDrive) $1,200 (2 MB/40 MB)	$1,600 (2 MB/40 MB) $2,000 (4 MB/80 MB)	$1,725 (2 MB/40 MB) $2,200 (4 MB/80 MB)
CPU			
Microprocessor	68000	68030	68020
Floating-point unit	none	none	none
Data bus	16 bits	16 bits	16 bits
Microprocessor clock speed	8 MHz	16 MHz	16 MHz
RAM caches	none	256-byte (instruction) in 68030 256-byte (data) in 68030	256-byte (instruction) in 68020
RAM on motherboard	1 MB	2 MB	2 MB
SIMM slots	0*	2	2
Memory-management unit	none	in 68030	none
Video	9-inch internal CRT	9-inch internal CRT	internal VRAM video controller
Maximum SCSI speed	750K/sec	1.3 MB/sec	1.1 MB/sec
Ports			
ADB	single	single	single
Audio out	mono	mono	mono
Audio in (mono)	○	●	●
Telecommunications	○	○	○
Serial (modem)	●	●	●
LocalTalk	●	●	●
EtherTalk	○	○	○
Video	○	○	●
SCSI	●	●	●
External floppy drive	●	●	○
Slots			
Processor direct	○	○	●
Cache card	○	○	○
NuBus	none	none	none
Other			
Keyboard included	●	●	●
A/UX-capable	○	○	○
Virtual-memory support	○	●	○
UL-approved	●	●	●
Size (L x W x H)	11.2 x 9.7 x 13.2 in.	11.2 x 9.7 x 13.2 in.	15 x 12.2 x 3 in.
Weight	16 – 17.1 lb	16 – 17.1 lb	8.8 lb

*Two SIMM sockets and an additional 1 megabyte of RAM are included on an add-in card in the 2-megabyte configuration.



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Table 3: Features of the Current Mac Family, continued

● = yes ○ = no	Notebook  PowerBook 100	 PowerBook 140	 PowerBook 170
List price (RAM/drive)	$2,299 (2 MB/20 MB) $2,499 (2 MB/20 MB with external floppy drive)	$2,899 (2 MB/20 MB) $3,199 (2 MB/40 MB)	$4,599 (4 MB/40 MB)
Street price (RAM/drive)	$1,900 (2 MB/20 MB) $2,050 (2 MB/20 MB with external floppy drive)	$2,450 (2 MB/20 MB) $2,800 (2 MB/40 MB)	$3,875 (4 MB/40 MB)
CPU			
Microprocessor	68HC000	68030	68030
Floating-point unit	none	none	68882
Data bus	16 bits	16 bits	16 bits
Microprocessor clock speed	16 MHz	16 MHz	25 MHz (16-MHz PowerSave mode)
RAM caches	none	256-byte (instruction) in 68030 256-byte (data) in 68030	256-byte (instruction) in 68030 256-byte (data) in 68020
RAM on motherboard	2 MB	2 MB	2 MB
SIMM slots	1†	1†	1†
Memory-management unit	none	in 68030	in 68030
Video	9-inch Supertwist LCD	9.8-inch Supertwist LCD	9.8-inch active-matrix LCD
Maximum SCSI speed	900K/sec	1.3 MB/sec	1.3 MB/sec
Ports			
ADB	single	single	single
Audio out	mono	mono	mono
Audio in (mono)	○	●	●
Telecommunications	○	○§	●
Serial (modem)	●	●	●
LocalTalk	●	●	●
EtherTalk	○	○	○
Video	○◊	○◊	○◊
SCSI	●	●	●
External floppy drive	●**	○	○
Slots			
Processor direct	○	○	○
Cache card	○	○	○
NuBus	none	none	none
Other			
Keyboard included	●	●	●
A/UX-capable	○	●	●
Virtual-memory support	○	●	●
UL-approved	●	●	●
Size (L x W x H)	11 x 8.5 x 1.75 in.	9.3 x 11.25 x 2.25 in.	9.3 x 11.25 x 2.25 in.
Weight	5.1 lb	6.8 lb	6.8 lb

†One RAM slot expandable to 8 megabytes, using 2-, 4-, or 6-megabyte memory-expansion modules (pseudostatic RAM).

§An optional internal modem with a telecommunications port is available for $349.

◊A third-party adapter is required to drive a video display.

**The PowerBook 100 currently supports only the Apple Macintosh HDI-20 External 1.4MB Floppy Disk Drive.



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RAVEN·040 is available in capacities from 606 to 4,260 MB. Many of the RAVEN·040 pairs can be installed inside the Quadra 900 to conserve desk space. And the RAVEN·040 is directly bootable – it requires no special INITs or mounting software.

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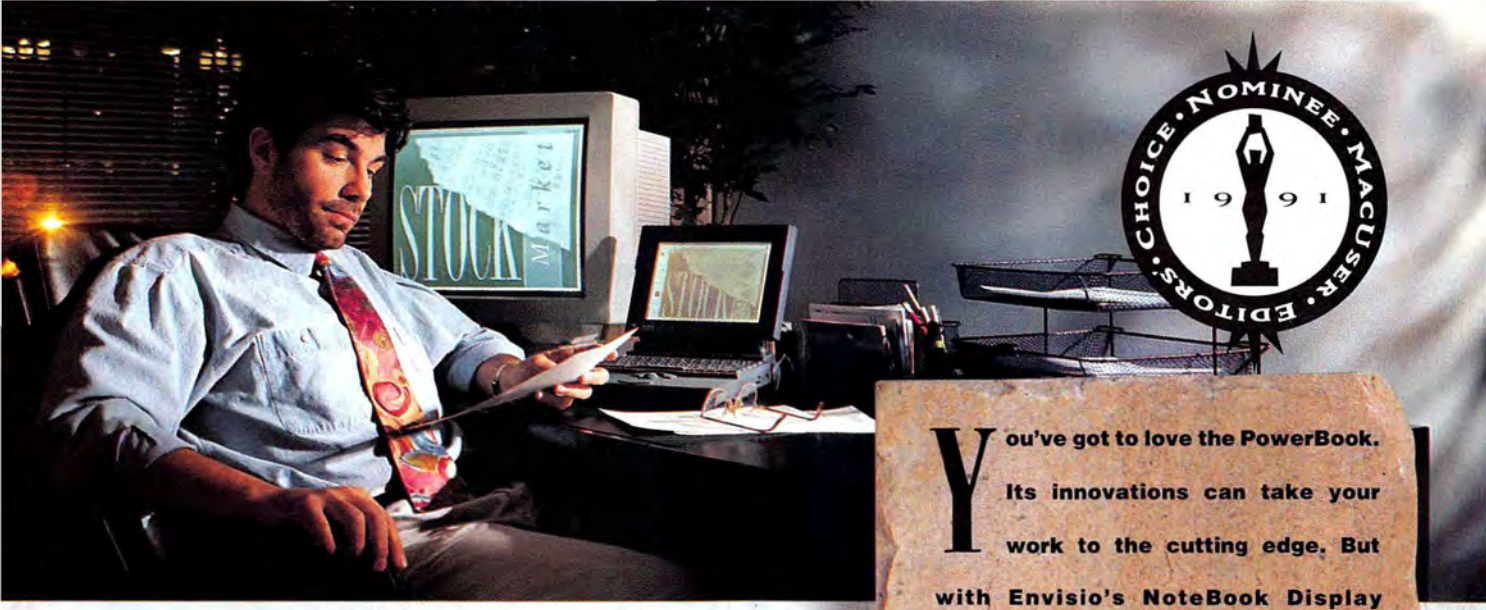
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CIRCLE 138 ON READER SERVICE CARD.

Table 3: Features of the Current Mac Family, continued

● = yes ○ = no	Modular  IIsi	 IIci	 IIfx
List price (RAM/drive)	$3,769 (3 MB/40 MB) $4,569 (5 MB/80 MB)	$5,269 (5 MB/SuperDrive) $5,969 (5 MB/80 MB)	$7,369 (4 MB/SuperDrive) $8,069 (4 MB/80 MB) $8,669 (4 MB/160 MB)
Street price (RAM/drive)	$2,600 (3 MB/40 MB) $3,175 (5 MB/80 MB)	$3,475 (5 MB/SuperDrive) $3,975 (4 MB/80 MB)	$3,875 (4 MB/SuperDrive) $4,475 (4 MB/80 MB) $4,900 (4 MB/160 MB)
CPU			
Microprocessor	68030	68030	68030
Floating-point unit	68882††	68882	68882
Data bus	32 bits	32 bits	32 bits
Microprocessor clock speed	20 MHz	25 MHz	40 MHz
RAM caches	256-byte (instruction) in 68030 256-byte (data) in 68030	256-byte (instruction) in 68030 256-byte (data) in 68030 32K on cache card	256-byte (instruction) in 68030 256-byte (data) in 68030 32K on motherboard
RAM on motherboard	1 MB	none	none
SIMM slots	4	8	8
Memory-management unit	in 68030	in 68030	in 68030
Video	internal RAM video controller	internal RAM video controller	NuBus video card required
Maximum SCSI speed	2 MB/sec	2.1 MB/sec	1.5 MB/sec
Ports			
ADB	single	dual	dual
Audio out	stereo	stereo	stereo
Audio in (mono)	●	○	○
Telecommunications	○	○	○
Serial (modem)	●	●	●
LocalTalk	●	●	●
EtherTalk	○	○	○
Video	●	●	○
SCSI	●	●	●
External floppy drive	●	●	○
Slots			
Processor direct	††	●	●
Cache card	○	●	○
NuBus	1††	3	6
Other			
Keyboard included	○	○	○
A/UX-capable	●	●	●
Virtual-memory support	●	●	●
UL-approved	●	●	●
Size (L x W x H)	14.9 x 12.4 x 4 in.	14.4 x 11.9 x 5.5 in.	14.4 x 18.7 x 5.5 in.
Weight	10 lb	13.6 lb	24 – 26 lb

††The IIsi's expansion slot accepts either a card with a processor-direct slot or a card with a NuBus slot. Apple's cards both include a 68882 floating-point unit.



CHOICE • NOMINEE • MACUSER • EDITORS • 1991

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CIRCLE 37 ON READER SERVICE CARD.

Table 3: Features of the Current Mac Family, continued

● = yes ○ = no	68040-based  Quadra 700	 Quadra 900
List price (RAM/drive)	$5,699 (4 MB/SuperDrive) $6,399 (4 MB/80 MB) $6,999 (4 MB/160 MB)	$7,199 (4 MB/SuperDrive) $8,499 (4 MB/160 MB)
Street price (RAM/drive)	$4,825 (4 MB/SuperDrive) $5,450 (4 MB/80 MB) $5,975 (4 MB/160 MB)	$6,150 (4 MB/SuperDrive) $7,275 (4 MB/160 MB)
CPU		
Microprocessor	68040	68040
Floating-point unit	subset of 68881/2 built in to 68040	subset of 68881/2 built in to 68040
Data bus	32 bits	32 bits
Microprocessor clock speed	25 MHz	25 MHz
RAM caches	4K (instruction) in 68040 4K (data) in 68040	4K (instruction) in 68040 4K (data) in 68040
RAM on motherboard	4 MB	none
SIMM slots	4	16
Memory-management unit	in 68040	in 68040
Video	internal VRAM video controller	internal VRAM video controller
Maximum SCSI speed	5 MB/sec	8 MB/sec[§§]
Ports		
ADB	dual	single
Audio out	stereo	stereo
Audio in (mono)	●	●
Telecommunications	○	○
Serial (modem)	●	●
LocalTalk	●	●
EtherTalk	●	●
Video	●	●
SCSI	●	●
External floppy drive	○	○
Slots		
Processor direct	●[◊◊]	●[◊◊]
Cache card	○	○
NuBus	2[◊◊]	5[◊◊]
Other		
Keyboard included	○	○
A/UX-capable	●	●
Virtual-memory support	●	●
UL-approved	●	●
Size (L x W x H)	14.4 x 5.5 x 11.9 in.	20.6 x 8.9 x 18.6 in.
Weight	13.6 lb	36.75 lb

[§§]This exceptional speed can be reached only when both SCSI ports distribute a divided stream of data between two high-speed hard drives.

[◊◊]If the in-line PDS slot is used in either the Quadra 700 or the 900, one less NuBus slot is available.

Table 3 Criteria

Microprocessor — The central processing unit, or *CPU*, that manages the Mac and all of its applications.

Floating-point unit — In Macs with 68020 or 68030 CPUs, an optional chip that adds high-powered number-crunching capability. FPU functions are built in to the 68040.

Data bus — The width of the data path between RAM and the CPU, in bits.

Microprocessor clock speed — The speed of the signal that synchronizes internal computations in the CPU, in megahertz.

RAM caches — Caches that hold the most-recently-used data, where it can be accessed quickly by the microprocessor.

RAM on motherboard — The amount of nonremovable RAM that's soldered onto the motherboard, in megabytes.

Memory-management unit — The location of the MMU (if any), which is necessary to support virtual memory and A/UX.

Video — The primary display device supported, whether it be a built-in display, a video port for an external monitor, or a required NuBus card.

Maximum SCSI speed — The maximum speed at which information can be sent to and received from SCSI devices, in kilobytes or megabytes per second.

Audio in (mono) — Does the Macintosh support mono audio input and digitization?

Telecommunications — Does the Mac have an RJ-11 port connected to an internal modem?

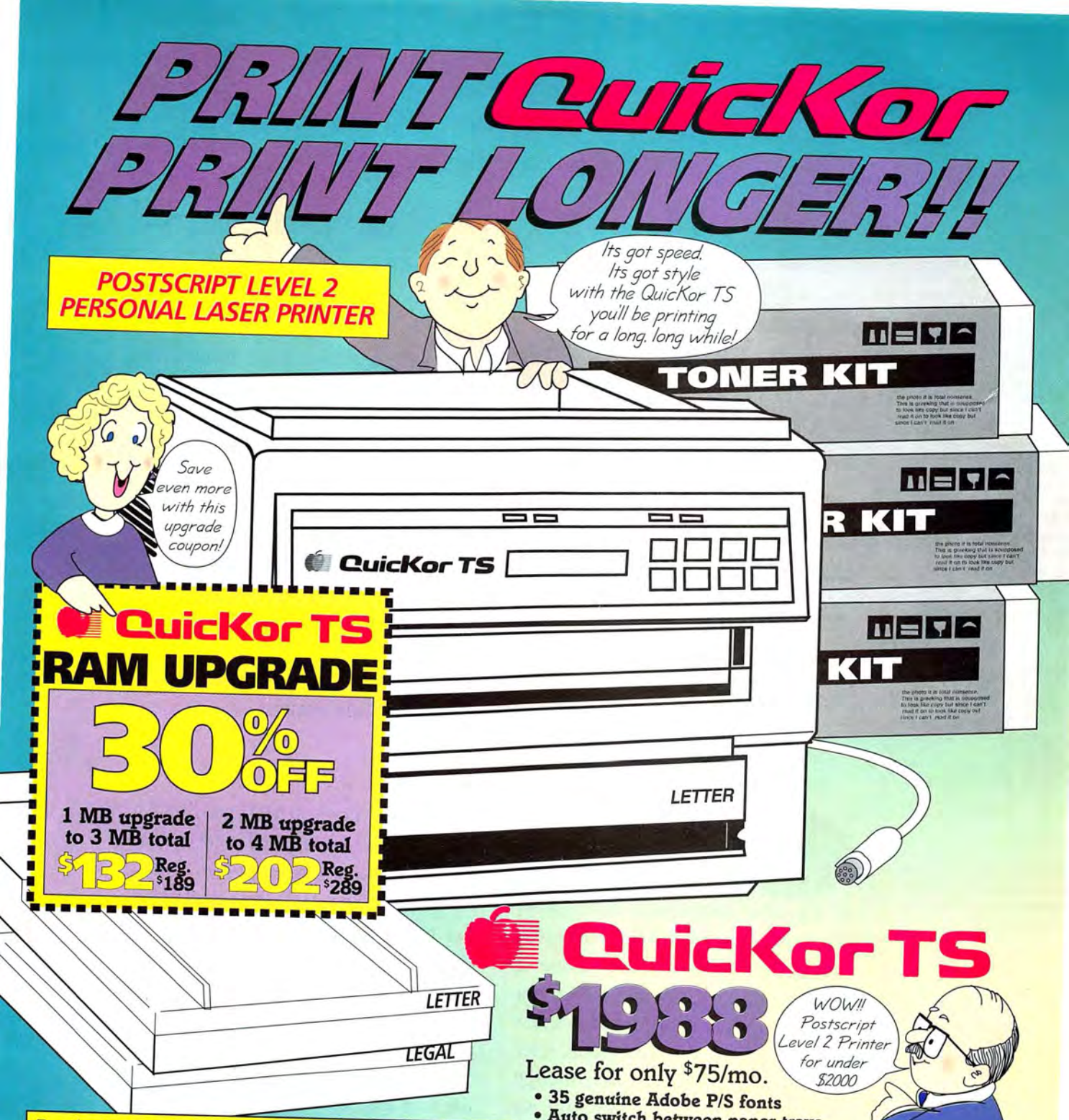
Serial (modem) — Does the Mac have a port to connect an external modem or other serial device?

LocalTalk — Does the Mac have a port for connecting a LocalTalk network?

EtherTalk — Does the Mac have a port for connecting to an Ethernet network? (Requires appropriate Apple or third-party adapter for 10BASE-T wiring, or thick or thin coaxial cable.)

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CIRCLE 92 ON READER SERVICE CARD.

Stamp of Approval: Mac E-Mail Systems

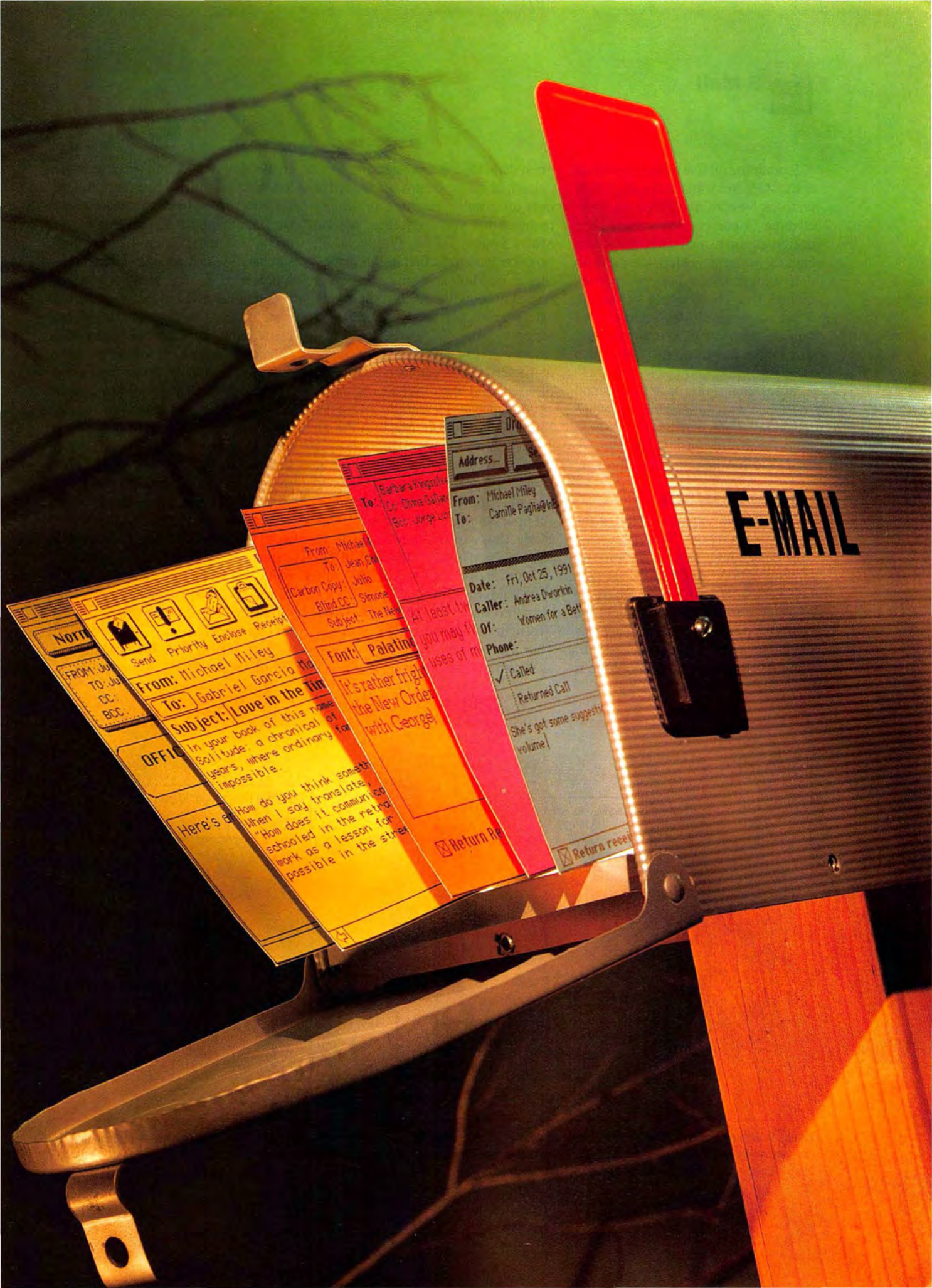
MacUser Labs looks at five E-mail packages that provide a rich array of options, from forms to voice to wide-area communications.

BY MICHAEL MILEY AND THE MACUSER LABS STAFF

Workgroup applications received a lot of press over the past year as the latest fix for what ails the workplace. Group schedulers, group editors, and group information managers have sprung up on networks of DOS and UNIX machines and Macs, with promising strategies for enhancing workgroup interactions. For the most part, though, workgroup applications are only just beginning to deliver on promises that electronic mail has been fulfilling for quite some time. E-mail, with its intelligent transfer of messages and files, lies at the heart of workgroup efficiency.

For this report, MacUser Labs revisited four E-mail packages — CE Software's QuickMail, cc:Mail's cc:Mail, Microsoft's Microsoft Mail, and Sitka's InBox Plus — we'd tested in an earlier ground-breaking lab report (see "Mail Call," July '90, page 92). But a challenger has recently appeared: WordPerfect Office, from the maker of the leading DOS-based word processor. As its name suggests, WordPerfect Office is an office-automation package; it includes a group calendar, a forms maker, a notebook, a file manager, and electronic mail. For this report, we looked only at the E-mail portion of the package, which offers stiff competition for our leading contenders. These five packages comprise the Mac-based *store-and-forward* E-mail packages (see the "How It Works: E-Mail Message Management" sidebar) available at press time.

PHOTOGRAPHY: WALT DENSON


E-MAIL
Address...
From: Michael Miley
To:
Date: Fri, Oct 25, 1991
Caller: Andrea Dworkin
Of:
Phone:
Called
Returned Call
From: Michael Miley
To: Gabriel Garcia
Subject: Love in the Tim
Font:
Send
Priority
Enclose
Carbon Copy:
Blind CC:
Subject:

Examining all five products with an eye to their architecture as well as their features, we confirmed what we'd discovered in our previous report: The design of an E-mail program — its client/server relationship — is the main determinant of its network performance. That situation hasn't changed. What has changed is that all four of the familiar products have improved and that Office has made the field much stronger.

With the current crop of Mac E-mail packages, you can send memos, voice messages, graphics, files, and faxes to users nearby or around the world, confident that the mail will go through.

Installation and Setup

Most E-mail software is built on the *client/server* model: The processing task of sending mail to various recipients around the network is split between *client* software at each user's Mac and *server* software that acts as a centralized post office for the network. On large networks, for the sake of good performance, the server Mac is often dedicated to that task.

Each of the programs we looked at uses an installer program or simply requires that you copy files into the Mac's System Folder. With cc:Mail, however, you must first install AppleShare; cc:Mail uses any file server compatible with AFP (AppleTalk Filing Protocol) as its central post office.

Once you've installed the software at the server, you can then build a list of users and their passwords. With cc:Mail, because it requires an AppleShare server, you must build an AppleShare user list before creating the cc:Mail user list. (If you won't be using the AppleShare server except to provide support for cc:Mail, you can set up a common account for AppleShare, thus expediting setup.) QuickMail lets you import name lists in tab- or comma-delimited format, and WordPerfect Office lets you import user information from a DOS-based WordPerfect Office server for use by your Mac server.

With most E-mail packages, the real challenge is maintaining accurate name lists and passwords over time. On large networks, user-list maintenance can be a nightmare for administrators and users (see the "Extensible E-Mail" sidebar). In a fast-paced business environment, users are constantly being added or deleted and, because E-mail systems can literally span the globe, maintaining all users' directory lists and passwords can be a daunting task.

Of all the five programs, only Microsoft Mail and cc:Mail update and display a universal user list, or directory, fully automatically. When you first launch the server, Mail searches the network for all the other servers — even those in different zones — and gathers user information. cc:Mail has very sophisticated directory propagation, but you need a separate DOS-based product — Automatic Directory Exchange — and a cc:Mail gateway to update server lists on an internet. Such extra costs can add up quickly.

With InBox Plus, QuickMail, and WordPerfect Office, server-to-server

Figure 1: Cost per Workstation

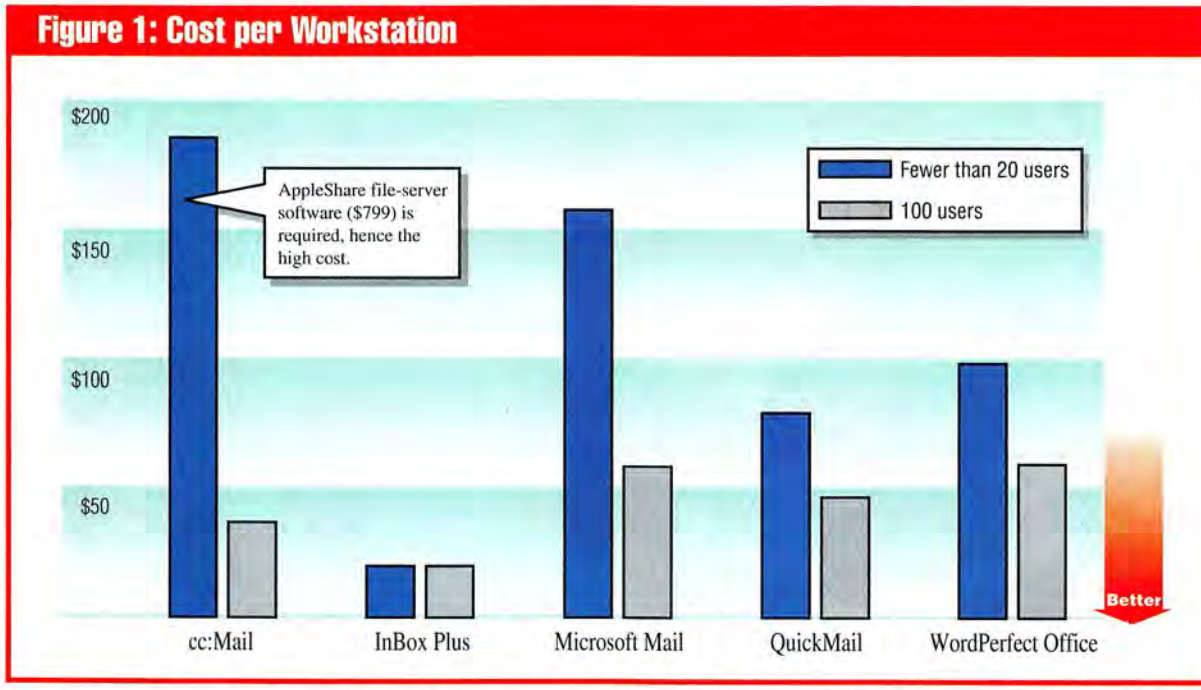


Figure 1: Both cc:Mail and Microsoft Mail have an additional charge for the server software — $495 and $395, respectively — making their cost per workstation on small networks higher than that of the other packages. WordPerfect Office is an entire suite of groupware applications, which accounts for its high per-workstation cost.

registration is manual and updating of directory and group information is only semiautomatic.

QuickMail's NameServer program lets you set times for updating lists of names and purging old names, and it lets you verify personal directories and groups each time you log on. If users choose not to verify their address lists, the server can become loaded with undeliverable mail.

WordPerfect Office also has the potential for accumulating undeliverable mail — and hence wasting valuable disk space on the server — because it lets users address messages simply by typing a name. They can send misaddressed mail and not know unless they check their mail log — the Out box — by selecting the message and clicking on the Info button. If the mail was misaddressed, they will then see a Bad User label next to the recipient's name.

Server Maintenance

In addition to maintaining accurate user lists, administrators need to be able to perform several types of regular E-mail maintenance. These include adding new features to the system over time, tweaking the server's settings — such as setting time-out variables, for instance — for optimal performance, and regularly backing up the mail files. How well and how easily administrators can perform these tasks depends on the tools that each E-mail package provides.

Microsoft Mail is still the only package that provides a utility for automatically backing up the server on a regular basis. You can schedule the time and specify into which folder of any attached hard-disk drive the files should be backed up. And you can designate which Mac should receive the "backup complete" message.

General diagnostic utilities are important for maintaining your E-mail network. Microsoft Mail and QuickMail provide the most tools for getting a profile of your system. Mail gives you a wide variety of reports on server usage, user and group lists, and the like. QuickMail gives you more online, configurable information about your system than Mail does, but maintaining all of QuickMail's options can be daunting.

Usually only one person, the network administrator, needs to worry about server installation, setup, user lists, and other server-related issues. The people who actually *use* an E-mail program deal only with the client software, and their first experience of their mail system will be its interface.

Features and Interface

A good user interface is often a trade-off between features and simplicity: A clean interface invites users to make the most use of the system, but as more features are added, it becomes increasingly difficult to keep the interface uncluttered and intuitive. Enclosing files and addressing, replying to, forwarding, and storing mail should be straightforward. Keyboard command equivalents for frequently used icon and menu operations are helpful.

Among the five packages we evaluated, cc:Mail, InBox Plus, and Microsoft Mail have relatively clean interfaces (see Figure 2). On the other hand, additional features become more important as users' skills grow, and the products with the most features — QuickMail and WordPerfect Office — sometimes look cluttered.

To a limited extent, though, the client software in each of the five packages is customizable. You can specify when and how you are notified of new mail, how mail should be displayed, how to track outgoing mail, and the like. A sound and a blinking Apple-menu icon are common notification methods. All the programs let you create folders for storing mail and let you save messages and enclosures to your local disk. QuickMail lets you set keyboard command equivalents for accessing its QuickSend, Conference, and Mail features.

With InBox Plus, Microsoft Mail, and QuickMail, you can sort your mail by priority, topic, sender, or date. InBox

Extensible E-Mail

As your network evolves, you may need to expand your E-mail system in several ways — adding users, splitting mail service among servers, and establishing links to remote sites, for example. All the basic E-mail packages offer various expansion possibilities.

Server-to-Server Communication

The more users logged on to a given mail server, the slower the server's performance. All five products let you spread the work around by setting up multiple servers and establishing connections from server to server. Server-to-server communication requires that each server be set up with a list of all other servers and those servers' user lists, which can be a time-consuming endeavor. Of all the packages, only Microsoft Mail completely automates server-to-server setup, saving you time and trouble. Only QuickMail provides the asynchronous-dial-up support needed for server-to-server communications over phone lines — useful if E-mail users in Denver want to send mail to an office in Chicago, for example.

Remote Access

QuickMail, Microsoft Mail, and cc:Mail provide handy programs for accessing mail while you're away from your office. With QuickMail Remote 2.5, you can dial up your network, access your mailbox, read and send mail (including enclosures), and download files, all through the same interface you see at the office. Whereas QuickMail Remote automates dial-up, Microsoft Mail Remote requires a telecommunications program to establish the connection, and the interface is more DOS-like than Mac-like.

The remote packages for QuickMail and Mail are included in the basic packages, but cc:Mail's remote package must be purchased separately. And cc:Mail requires a separate DOS-based cc:Mail gateway to enable the remote process.

Gateways

Sending mail to friends or business associates via a commercial information system can be a cumbersome process. A *gateway* to such systems lets you send mail directly from your E-mail system to MCI, CompuServe, and so on without additional communication programs. Currently, more gateways are available for cc:Mail and QuickMail than for any other E-mail packages; Microsoft is expected to offer a wider selection soon.

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Hayes Personal Modem 2400 Plus with Smartcom

The Hayes Personal Modem 2400 Plus provides you with everything you need to go on-line. This 2400 baud modem has a built-in call-monitoring speaker and two LEDs, plus both phone and computer cables. Included in the package is the Smartcom terminal software to make using your modem simple and convenient. It fully supports the Mac interface. Also emulates popular terminals, such as TTY and VT52/102, to make mainframe and mini access easy. File transfer protocols include XModem and MacBinary.

Manufacturer: Hayes MOD0060

$149

KaleidoKubes



Challenging yet easy to play. KaleidoKubes appears simple at first, but as the game board grows, it becomes complex. Every game is different, because you actually create the game board as you play.

ENT0417 $19.

Bridge 6.0

Now you can play a rubber of Bridge 6.0 with the Mac's three players. Bridge 6.0 handles all the bookkeeping and tactfully informs you of any mistakes in bidding or play. Even saves hands for replaying and analysis.

Publisher: Artworx
ENT0303

$29

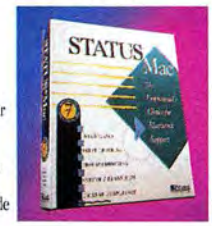


Lotus 1-2-3 For Macintosh

At last, a 1-2-3 spreadsheet that is designed exclusively for the Macintosh computer. 1-2-3 for Macintosh takes full advantage of the rich graphical environment of Macintosh while delivering significant new spreadsheet features. And of course it's compatible with other new versions of 1-2-3 and Excel. A whole new kind of 1-2-3 created expressly for Macintosh. The result is a rich design that makes even the most complex spreadsheet tasks easy. 1-2-3 for Macintosh sets a new standard for what a Macintosh spreadsheet should be. System requirements, any Macintosh with a hard disk. 2MB RAM under System 6 or later. 3 MB RAM under 7. **Publisher: Lotus Development BUS0188**

$329

STATUSMac 2.0 for Small Networks - 25 Users



STATUSMac 2.0 gathers information about all the Mac hardware and software on your network, and provides an extensive profile of each connected Mac, whenever you need it. Complies the profiles into a single database to provide a complete inventory and comprehensive overview. Helps to identify users with printer driver conflicts, extra System folders, INIT conflicts, or outdated antivirus utilities. Best of all, STATUSMac does all this remotely. Supports up to 25 Macs from one station.

Publisher: Pharos Technology NET0156

$299

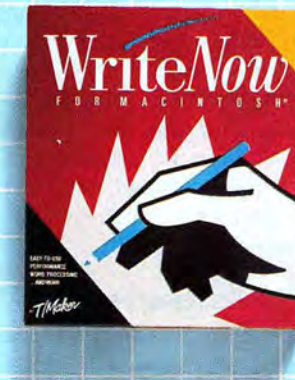


WristSaver/ WristSaver MousePad

The WristSaver cradles your wrist with a contoured neoprene rubber pad and a nylon covering. It's ergonomically designed to support your wrist at the proper angle to help avoid the pain associated with Carpal Tunnel Syndrome. The WristSaver MousePad provides a comfortable rest for your wrist, plus a conventional mouse pad. Simple finger movements replace sliding the entire arm or hand.

Manufacturer: LB Innovators
***WristSaverMousePad* ACC0635 $18.**
***WristSaver* ACC0560 $18.**
***Bundle* BND0033**
(Available in Gray, Black, Red or Navy)

$29

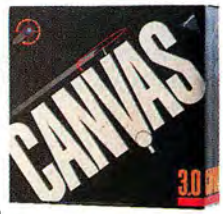


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T/Maker's Promo Pack - a $427 value for only $99. Never has so much value been delivered at such a low price! WriteNow®, a two-time Eddy award winner for word processing, comes with a full version of Grammatik™ Mac 2.0, one of the best-selling grammar/style checker (a $99 value) and a full version of MacTools® Deluxe, the data protection and file management utility, (a $129 value) FREE! All three applications are System 7 compatible! WriteNow® 2.2 offers all the features you expect in a word processor and includes one of the largest dictionary/ thesaurus combination in the Macintosh world! While Supplies Last! **Publisher: T/Maker WRD0018**

$99

Canvas 3.0



Canvas 3.0 is fast, powerful, easy to learn and provides all the tools you'll need to create and print professional quality color or monochrome graphics. Use in a wide range of design projects including desktop publishing, technical illustration, design graphics, architectural rendering, engineering drawing, presentations, multimedia and general business graphics. Canvas 3.0 offers unparalleled productivity. Create illustrations from scratch with our new freehand tool, or scan existing artwork and let Canvas auto trace its outlines for you. System 7 Savvy!

Publisher: Deneba Software GRA0280

$249

Retrospect 1.3 or Retrospect Remote

For power and simplicity in backup, there's Retrospect. Set it up once, and a built-in calendar backs you up again and again, even when you're asleep. Retrospect supports all disk, tape, cartridge and optical devices, so you can decide which storage media best suits your needs. For centralized network backup, there's Retrospect Remote. It works just like Retrospect, only it backs up everyone on a network to a single storage device. Your whole network gets Retrospect protection automatically. Let your backup expand as your network grows by adding Remote 10-Packs.

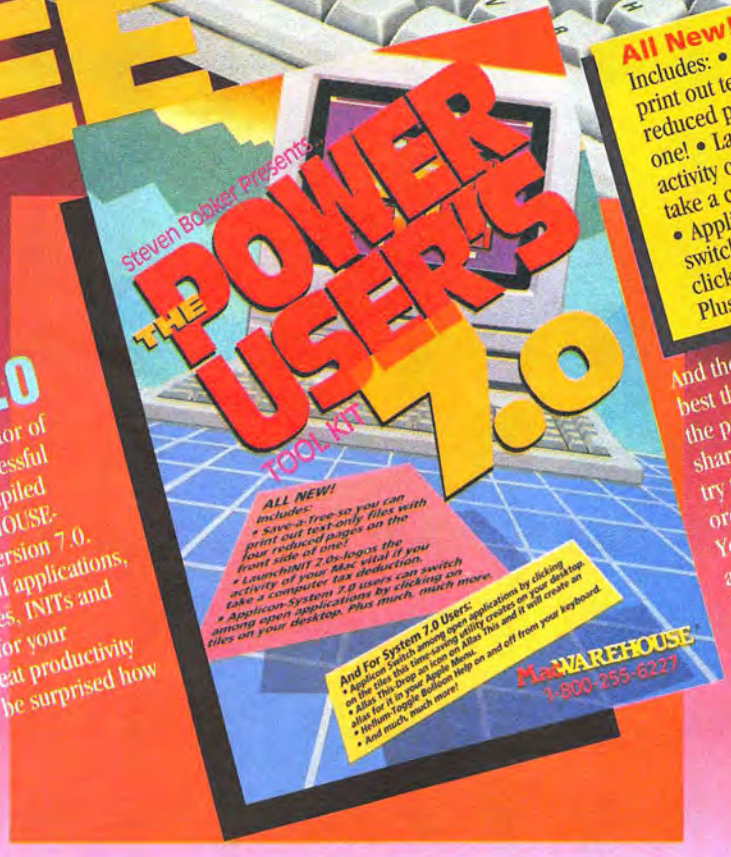
Publisher: Dantz Development
***Retrospect 1.3* UTI0227 $147. *Remote 10-pack* UTI0200 $147. *Retrospect Remote* UTI0196**

$264



FREE POWER USERS TOOL KIT 7.0

If you're not already a collector of Steven Bobker's highly successful Power User's Tool Kit -compiled exclusively for MacWAREHOUSE- you'll want to start with version 7.0. It's stuffed with ten useful applications, utilities, desk accessories, INITs and System 7.0 extensions for your Macintosh. They're great productivity enhancers and you'll be surprised how easy they are to use.



All New!
Includes: • Save-a-Tree- so you can print out text-only files with four reduced pages on the front side of one! • LaunchINIT 2.0s - logs the activity of your Mac - vital if you take a computer tax deduction. • Applicon - System 7.0 users can switch among open applications by clicking on tiles on your desktop. Plus much, much more.

And the best thing is, the programs are shareware so you can try them FREE when you order from MacWAREHOUSE. You pay only $1.50 shipping and handling if you want the disk. If you wish to continue using the software, some authors ask that you pay a small fee ($5-$25). All the details are explained on the disk, which is yours to keep. Please remember to ask for item # AAA 0013 when you order.

White Knight V.11

The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991.



Publisher: FreeSoft
COM0060

$85

Metamorphosis Professional 2.03



Now convert your Macintosh fonts to IBM-compatible & NeXT fonts! Metamorphosis® Professional converts PostScript® Type 1, Type 3, and TrueType fonts from the Macintosh to IBM-Compatible PCs running Windows 3.0 or greater and ATM; converts PostScript Type 1, type 3, and TrueType fonts from the Macintosh to Type 1 on the NeXT® workstations; and converts PostScript and TrueType typefaces into PICT and EPS outlines for use in a variety of your favorite drawing programs. Metamorphosis Professional is a "must have utility" for anyone working with type!

Publisher: Altsys
FON0284

$89



M.Y.O.B. 2.1

M.Y.O.B. 2.1 is an INCREDIBLE ACCOUNTING SOFTWARE system for small to medium size businesses. Features include fully integrated general ledger, A/P, A/R, inventory , checkbook and card-file. Gives you features not found in accounting packages costing hundreds of dollars. Great Value!

Publisher: Teleware
FIN0087

$139

FontMonger



FontMonger is the universal font utility for modifying, enhancing and converting typefaces. Change height, width and slant of a font's characters to create new fonts! Copy and paste to reassign characters on your keyboard or build a new font. Create fractions or composite characters and install them into your font. Import or export characters or fonts as EPS files for working in Illustrator or Freehand. FontMonger even lets you convert formats between PostScript Type 1, Type 3 and TrueType.

Publisher:
Ares Software FON0361

$62

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$339



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Meeting Maker takes the hard work and frustration out of scheduling meetings. Operating over your LAN, it provides each user with a personal daily calendar, with password protected privacy provisions. When you want to schedule a meeting, it finds the time slots when all the participants and facilities are free and automatically sends out invitations. It collects the responses and can enter the meeting and reserve the time in each person's daily calendar.
Publisher: On Technology
Meeting Maker 5-User **BUS0165 $309**
Meeting Maker 10-User **BUS0166**

$549

The UnMouse

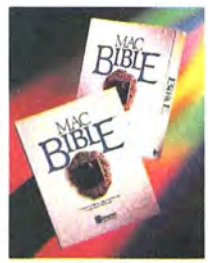


The UnMouse does everything a mouse can—only faster, easier, and in less space. To move the cursor, simply slide your finger over the glass surface. To make a selection merely press down. The UnMouse also serves as an extended keyboard. Tap the large red button and you have a Power Keypad with 16 keys instantly available to execute macros (60 in advanced mode). With its one million touch points the UnMouse also performs as a small graphics tablet. **Manufacturer: Microtouch INP0084**

$159

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$949

Home Office

Turn your Mac into an answering machine with a new voice feature added to a 2400 bps data/9600 bps send and receive fax modem. Record and play back messages, set up private mailboxes, retrieve messages remotely and more. Modem features V.42bis/MNP-5; also available in a 14,400 bps data version. **Manufacturer: Prometheus MOD0084**

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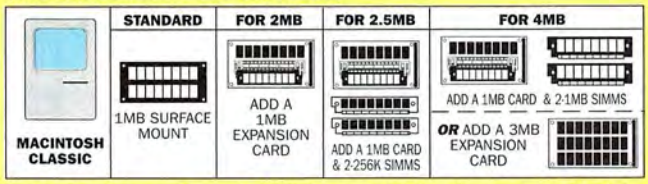
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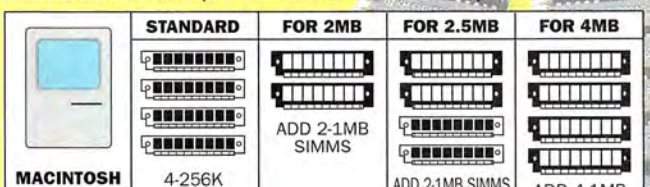
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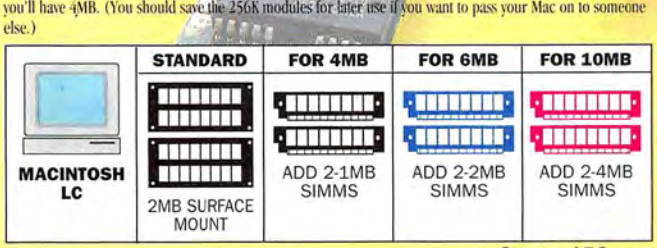
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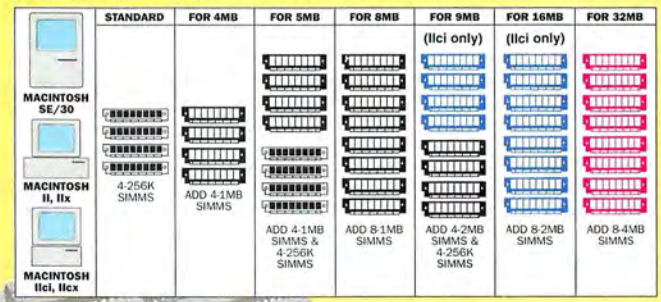
The Mac Classic comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Additional memory for your Mac Classic is provided by an Expansion Board, which slides into a slot on the Classic's motherboard. The Expansion Board can be purchased with 1MB of memory (for a total of 2MB), and then two 1MB SIMMs can be added to the Expansion Board later, for a total of 4MB. Or, you can install a 3MB Expansion Board, which brings your Mac Classic up to its full 4MB. **CHP0050** 1MB Expansion Board....$79 **CHP0051** 3MB Expansion Board....$179.



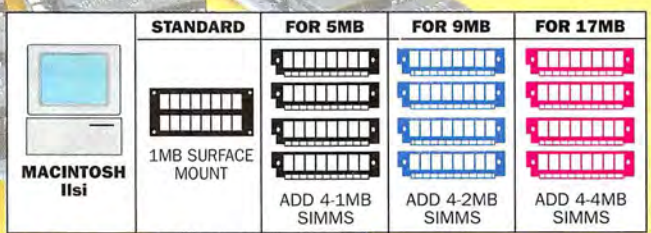
The Mac Plus and Mac SE have four available slots on the motherboard, which originally contain four 256K SIMMs modules — totalling 1 megabyte (1MB) of memory. To upgrade, you can replace each 256K module with a 1MB module, but you must do this in pairs. Replace two 256K modules and you will have a total of 2.5MB of memory. (That's the two new 1MB modules plus the original two 256K modules.) Replace all four modules and you'll have 4MB. (You should save the 256K modules for later use if you want to pass your Mac on to someone else.)



The Mac SE/30, II, IIx, IIcx, and IIci each come with a total of eight slots. The standard configuration has four 256K SIMMs modules, or a total of 1 MB. Here, memory must be upgraded in multiples of four. This allows for expansion from 1MB to 4, 5 or 8MB on the II and IIx, and up to 32MB on the SE/30, IIcx and IIci, depending on whether you are using 1MB, 2MB or 4MB SIMMs. If you are upgrading a Mac IIci, you must use SIMMs rated at 80ns or faster.



The Mac IIsi comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Four slots are available for additional memory, and you must upgrade your Mac IIsi in multiples of four. The Mac IIsi is expandable to 5, 9 or 17MB, depending on whether you are using 1, 2 or 4MB SIMMs, and the SIMMs modules must be rated at 100ns or faster.



The Mac LC comes with a standard 2MB of memory, surface mounted (soldered) to the motherboard, with two slots available for additional memory. The Mac LC can be upgraded to 4, 6, or 10 MB, depending on whether you are installing 1, 2 or 4MB SIMMs.

CHP0012	1MB	SIMMs - 120ns	$49
CHP0013	1MB	SIMMs - 100ns	$55
CHP0022	1MB	SIMMs - 80ns	$59
CHP0008	1MB	SIMMs - 70ns	$69
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How It Works: E-Mail Message Management

An E-mail system can work with or without a central *mail server* — a Macintosh with a hard-disk drive and message-handling software. In a serverless, or *direct-delivery* system, messages are transferred directly among computers. This method is fine for very small networks, where a server may not be practical. But most E-mail systems — including the five packages we looked at for this report — use a server that acts as a *store-and-forward* device: The server accepts messages; stores them in an *electronic mailbox;* and then sends the messages to the recipients, or *clients.*

How to divide this *client/server* work load is one system-design choice that vendors make when building an E-mail package. Striking the right balance is important. From the user's standpoint, how well an E-mail system performs is a matter of how long it makes you wait — while you're sending and fetching mail and so on. The more the client software must manage these tasks, the longer the user has to wait. Lotus' cc:Mail and Sitka's InBox Plus both manage these activities with the client software rather than at the server.

Another design difference is in how the E-mail server handles message files. InBox Plus, QuickMail, and WordPerfect Office use *file-copying-style* servers — messages are stored as separate files. On the other hand, cc:Mail and Microsoft Mail store all messages inside one *database* file.

About the only advantage of the file-copying-style scheme is that just individual messages are lost if a file becomes corrupted. Database-style servers are more efficient than file-copying-style servers under heavy server loads: Think about the difference between 20 concurrent file accesses and a single database-file access.

Microsoft Mail gives you the best of both worlds — a server-driven E-mail engine and a single database file on the server. In addition, an updated mail list is maintained on the client Mac, so when you access your mail, the list appears almost instantaneously. Microsoft Mail's combination of efficient architecture and automatic mail-list updating results in fast performance. By contrast, a program such as QuickMail, which must gather the list of mail from the server across the network, is slower.

Under most conditions, you can expect the fastest performance from Microsoft Mail, followed by QuickMail and WordPerfect Office and then by cc:Mail, with InBox Plus bringing up the rear.

cc:Mail



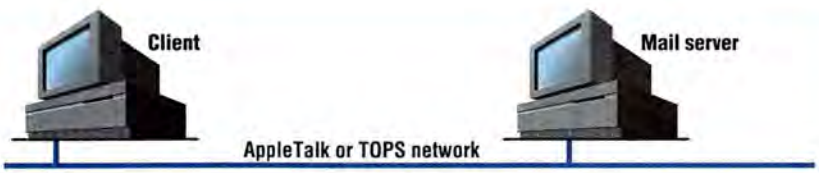
Client

- Sends one copy of a message and any enclosures to the server.
- Places a pointer to the message in each recipient's index file on the server.
- Polls the server, looking for incoming mail.
- Requests that any messages be sent from the server.

Mail server

- Runs on top of AppleShare file-server software.
- Stores all messages in a database file.
- Creates a copy of each message and any enclosures and sends them to the appropriate recipient when requested to do so by the client software.

InBox Plus



Client

- Sends a copy of each message to each recipient — for example, five recipients, five messages.
- Sends only one copy of any enclosures attached to a given message, regardless of the number of recipients.
- Polls the server, looking for incoming mail.
- Retrieves messages directly from the server and requests that any enclosures be sent from the server.

Mail server

- Runs on top of any HFS (hierarchical file system)-compliant file-server software.
- Stores messages as files in a folder for each recipient.
- Stores enclosures in a database.
- Creates copies of enclosures and sends them to the appropriate recipients when requested to do so by the client software.

Microsoft Mail



Client

- Sends one copy of a message and any enclosures to the server.
- Polls the server, looking for incoming mail.
- Requests that any messages be sent from the server.

Mail server

- Stores all messages in a database file.
- Keeps track of the location of all messages and recipients.
- Creates a copy of each message and any enclosures and sends them to the recipients when requested to do so by the client software.

QuickMail



Client

- Sends one copy of a message and any enclosures to the server.
- Retrieves messages and enclosures directly from the server.

Mail server

- Stores messages and enclosures for multiple recipients in a common folder.
- Places a pointer in each user's folder for every message and enclosure.
- Stores messages and enclosures for single recipients in the recipient's folder.
- Notifies each recipient that mail is waiting.

WordPerfect Office



Client

- Sends one copy of a message and any enclosures to the server.
- Retrieves messages and enclosures directly from the server.

Mail server

- Stores messages and enclosures as separate files in a common folder.
- Places a pointer in each user's folder for every message and enclosure.
- Notifies each recipient that mail is waiting.

Figure 2: Features and Interfaces

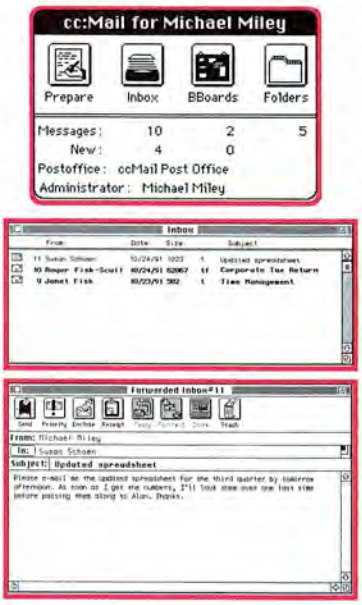


Figure 2a: cc:Mail provides a convenient status window from which you can prepare messages, open the Inbox, access the bulletin boards, and manage your folders. Messages are displayed in the order received, with the most-recent ones at the top.



Figure 2b: Sitka's InBox Plus provides the fewest features of all five Mac E-mail programs, and its interface is the least cluttered. You can easily initiate storing, printing, or deleting of messages and can create memos and phone messages by using the convenient floating palette.



Figure 2c: Microsoft Mail provides a variety of message form types, including one that displays a graphic image. You can store messages simply by dragging them into folders.



Figure 2d: QuickMail organizes mail into a hierarchical folder system containing the Mailbox, for incoming mail, and the Mail Log, which stores copies of messages that have already been sent. Like Microsoft Mail, QuickMail enables you to display Clipboard graphics.

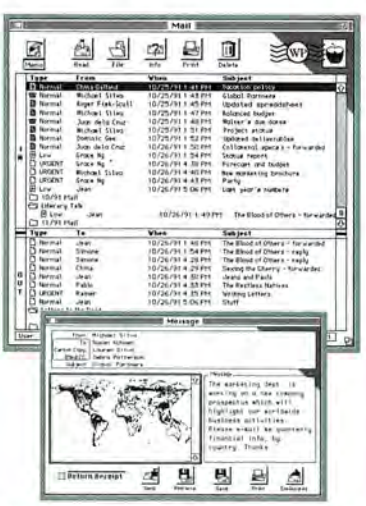


Figure 2e: WordPerfect Office's interface is much like QuickMail's in terms of message-file hierarchy, with one major flaw: Because the most-recent messages are at the bottom of the list, they often fall below the bottom of the window, out of view. Mail's out-box listing is similar to QuickMail's Mail Log.

Figure 2: One advantage of the relative paucity of features provided by cc:Mail and InBox Plus is that their interfaces are less cluttered than those of QuickMail and WordPerfect Office. Office took its cue from QuickMail, although it's not quite as intuitive as CE's product. All five programs sort mail by date, but InBox Plus, Microsoft Mail, and QuickMail give users the additional choices of sorting mail by priority or by status, topic, or sender.

Plus lets you search and filter the mail in your list by topic. QuickMail gives you the option of performing a reverse sort. cc:Mail and WordPerfect Office sort mail only by date received. cc:Mail lists mail in reverse order — the most recent mail is always at the top of the list, whereas Office puts the most recent mail at the bottom. The latter approach has a significant drawback: As your list of mail grows, the most recent messages fall below the bottom frame of the window.

Another important user feature is the ability to track outgoing mail. Although return receipts are a standard feature of all five packages, Microsoft Mail, QuickMail, and WordPerfect Office give you even more control over tracking mail. Microsoft's approach — you get a copy of your mail in the Out box — is not quite enough. QuickMail and Office go a step further: Their mail logs keep track of who's read or deleted a message. QuickMail and Office also allow you to "unsend" messages, even across servers.

All five mail packages let you set up address books containing the names of those to whom you frequently send messages and let you designate groups of users, which helps with addressing mail. But what do you do when the primary list from which you build your groups extends to, say, 200 users? You need to be able to type the first characters of a name to zoom to the name's location in the list. InBox Plus is the least convenient here, because it doesn't let you hot-key through a master list of names; it does, however, provide a Search feature for finding a specific user.

Enclosures, Graphics, and Sound

All five of the E-mail packages permit you to enclose multiple files with a message, although they impose some limits. QuickMail, cc:Mail, and WordPerfect Office currently impose limits of 16, 20, and 99 files, respectively, whereas InBox Plus and Mail are limited only by available RAM and disk space. Microsoft Mail lets you set a data limit for enclosures. All the programs store a single instance of an enclosure on the server, no matter how many recipients that enclosure is targeted for. Both Mail and QuickMail also have hooks to Aladdin Systems' StuffIt Deluxe package for compressing files on the fly before they're sent over the network.

All the products let you include graphics and sound files as enclosures, just as you would any other enclosure. InBox Plus is the only one that doesn't provide some means for displaying graphics. cc:Mail's display is limited to DOS-based formats such as Snapshot or PCX. QuickMail, Microsoft Mail, and WordPerfect Office display PICT and MacPaint files. QuickMail lets you see what's enclosed in its Clipboard when you open the message, and Office and Mail have special graphic forms.

Microsoft Mail, QuickMail, and WordPerfect Office also provide the means to create and play voice messages. Using a microphone and a sound driver from third-party manufacturers or those included with the Mac Classic, LC, and IIsi, you can record, play, and fast-forward a voice message and enclose it along with your memo. Compression ratios can be set prior to recording to reduce the size of the voice message.

cc:Mail's voice capabilities take an interesting new direction through use of third-party products available from VoxLink, of Nashville, Tennessee. Through VoxMail, cc:Mail converts text messages to speech, which can be heard over the phone. And another product, VoxVoice, uses the phone for linking voice phone messages to the cc:Mail Inbox via message headers.

Custom Forms

A clear line of demarcation between the front-runners and the also-rans lies in the production of special forms for use with E-mail. The top three products — Microsoft Mail, QuickMail, and WordPerfect Office — provide forms packages along with their mail systems.

Microsoft provides Form Designer, an intelligent HyperCard stack that lets administrators build forms for Mail and its related product Schedule+, compile them, and install them on the server, giving administrators control over what forms get installed. CE Software includes QM Forms with the QuickMail package. Office's Forms Maker program is the most elegantly designed and powerful of the three, providing the best manual; the widest set of tools; and the ability to create forms for Office's Mail, Calendar, and Notebook modules.

E-Mail and Other Applications

Microsoft Mail lets you send the document on your screen right from within Word and Excel. QuickMail

On the Horizon

Packages such as WordPerfect Office and add-on modules such as Schedule+ for Microsoft Mail indicate that Mac E-mail applications are evolving into true groupware applications. WordPerfect Office is an office-automation package that integrates E-mail with group scheduling and provides forms and utilities. Microsoft Mail acts as the foundation on which to build integrated groupware applications a module at a time. Microsoft's open strategy holds promise for easy introduction of groupware into the workplace. But CE Software isn't resting on its laurels, as seen by its recent purchase of Perfect Timing, a group scheduling application. Groupware, the stuff of workgroup computing, is a natural evolutionary byproduct of E-mail.

Apple Computer has announced plans to add to a future version of System 7 a set of new features known as OCE (Open Collaborative Environment). OCE will enable store-and-forward messaging throughout the Macintosh environment, from any application. It will also provide comprehensive directory services into which current E-mail directory and naming services will be able to integrate. Finally, OCE will provide digital-signature capability, for ensuring the authenticity of electronic messages and encrypting message contents.

adds a Send function to the Apple menu, which also lets you send from within applications. Mail's operation is a true form of interapplication communication (IAC), whereas QuickMail's is essentially a script that saves your file and puts it into a memo.

Another current trend is to build E-mail features directly into standard applications. We expect to see more programs becoming *mail-enabled*, and vendors are scrambling to develop standards. Last fall, Microsoft published a new set of standards called MAPI (Messaging Application Programming Interface), and Lotus, Apple, and IBM announced a specification called OMI (Open Messaging Interface) for creating a common interface among applications that will allow them to become mail-aware.

Meanwhile Apple is working on providing a set of standards known as OCE (Open Collaborative Environment) that will enable mail and messaging throughout the Macintosh's System 7 (see the "On the Horizon" sidebar).

Special Delivery

QuickMail and WordPerfect Office both allow peer-to-peer conferencing among users on a network. In real-time conferencing, the server Mac is sidestepped and messages are sent back and forth directly among the participants' Macs. WordPerfect Office's Talk system works like a phone does: You answer the call before you talk. QuickMail's Conferencing system activates a screen when someone sends you a message. This can get annoying, but you can turn the feature off for any designated time period and send a message to that effect. Office also lets you turn conferencing off. Both packages let you save transcripts of conversations. Office has a Broadcasting feature, which lets you send one-way announcements.

Final Delivery

E-mail on the Macintosh has made significant strides in the last two years, but there's still some room for improvement. CE Software has slightly redesigned its QuickMail server, but it still has a ways to go. And there are still interface problems with many of these products: Ease of use and intuitiveness can sometimes fall by the wayside when the feature set is pumped up.

Nonetheless, any business can operate more effectively with an E-mail system installed on its network — in fact, the efficiency an E-mail system offers is frequently reason enough to install a network in the first place. Take a look at the "Bottom Line" sidebar for our recommendations.

San Francisco-based free-lance writer Michael Miley won the Computer Press Association's Best Software Review award for "Mail Call," his 1990 *MacUser* lab report on electronic mail.

The Bottom Line

If you want the most full-featured program for users, get **QuickMail 2.5** ($399/5 users). CE Software has redesigned QuickMail's server message-handling scheme to enhance performance: Rather than storing multiple copies of a multiple-recipient message, QuickMail now stores a single copy of messages and enclosures and uses an indexing scheme to deliver the message to all recipients. This technique also saves disk space on the server. But CE Software still has more work to do. A database-style E-mail server is more efficient and QuickMail's design — and overall performance — could be improved by following that model.

If you are willing to do without some features — an unsend function and peer-to-peer conferencing, for example — and simply want the most reliable E-mail performer, then get **Microsoft Mail 3.0** ($395/5 users, plus $395 for server software). Microsoft has beefed up Mail's feature set over previous versions — adding support for multiple enclosures and a user filing system, for example — while maintaining its elegant architecture. And Microsoft Mail is a solid performer for multiplatform networks; you can depend on it to get the mail through.

But the real news this year in Mac E-mail is **WordPerfect Office 3.0.1** ($495/5 users), a surprisingly good runner-up for a first-release Mac program. As with any new program, WordPerfect is still ironing out some wrinkles, and the design of the interface for supporting Office's many features occasionally falls short. But if you're attracted to group scheduling and workgroup computing, you should consider Office a serious competitor to QuickMail and Microsoft Mail.



CE Software's QuickMail provides the most user and administrator features of any of the E-mail packages considered here, but Microsoft Mail has superior design and performance.

cc:Mail 1.22 ($195/8 users, plus $495 for server software) is a powerful and full-featured mail package. But because many of its best features require additional software and hardware — DOS hardware, not Macs — we don't recommend it for Mac-centric networks. Another strike against cc:Mail is that it requires AppleShare file-server software, which increases costs by another $799.

We also don't recommend **InBox Plus 3.0G** ($995/50 users); it has the most limited feature set of all five packages. Workstation InBox comes free with the 20-user version of TOPS, but if your network is that small, chances are System 7's file-sharing ability along with a low-cost point-to-point E-mail program such as Beagle Bros' Flash may be all you need anyway.

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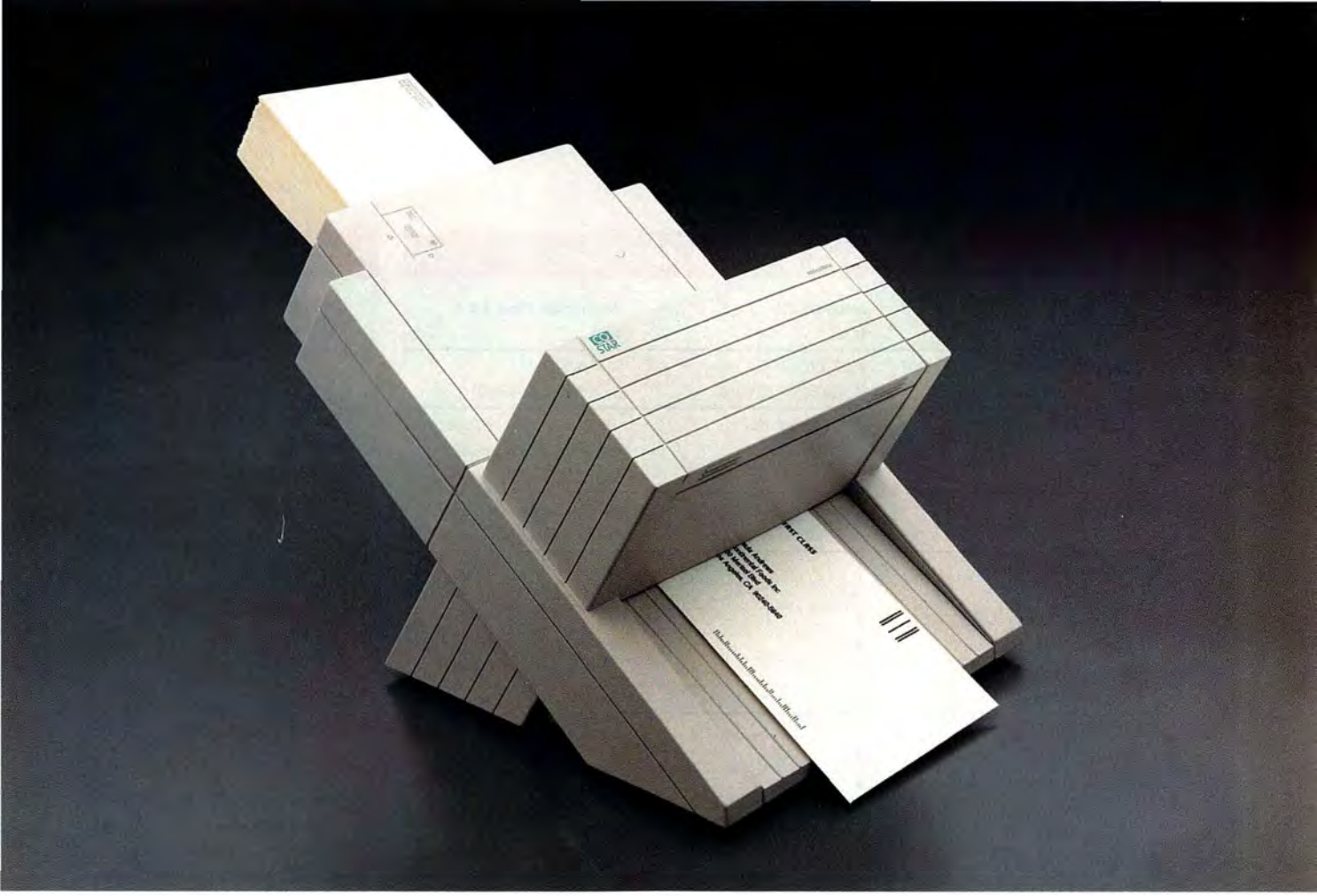
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CIRCLE 82 ON READER SERVICE CARD.

Table 1: Features of E-Mail Software

● = yes ○ = no	cc:Mail 1.22 ♦♦♦½	InBox Plus 3.0G ♦♦♦½	Microsoft Mail 3.0 ♦♦♦♦½
List price/no. of clients supported	$195/8, $595/25; Platform Pak, $495/server	$995/50, $1,995/100, $5,995/250	$395/5, $1,349/20, $5,500/100; $395/server
Pros	Cross-platform E-mail that runs on any AFP-compliant server.	Cross-platform E-mail that runs on any HFS-compliant file server.	Elegant architecture that's built for quick response and reliability.
Cons	Requires DOS-based cc:Mail for many features.	Limited user feature set.	Limited user feature set.
Mail-server features			
Database storage	●	○	●
Single-instance messages	●	○	●
Single-instance enclosures	●	●	●
Max. no. of enclosures	20	unlimited	unlimited
Max. no. of users per server	65,000	250	unlimited
User features			
Group setup	●	●	●
Keyboard addressing	●	○	●
Customizable forms	○	○	●
Voice messages	○	○	●
Graphic display	●	○	●
Peer-to-peer conferencing	○	○	○
Message sorting (priority/topic/sender/date)	d	p/t/s/d	p/t/s/d
Message encryption	●	●	●
Message filter	○	●	○
Mail log	●	○	●
Message unsend	○	○	○
Spelling checker	○	○	○
On-line help	○	●	●
Remote dial-up utility	●*†	○	●
Administrator features			
Group setup	●	●	●
Change of passwords	●	●	●
Server data compression	●	●	●
Dated-mail purge	●	○	●
Backup-and-restore utility	○	○	●
Directory-list import/export	●†	●	●
Automatic user-group update	●†	○	●
Company	cc:Mail, a division of Lotus 2141 Landings Dr. Mountain View, CA 94043 (800) 448-2500 (415) 961-8800	Sitka Corp. 950 Marina Village Pkwy. Alameda, CA 94501 (510) 769-9669	Microsoft Corp. One Microsoft Way Redmond, WA 98052 (206) 882-8080

*Must be purchased separately.
†DOS-based machine required.



Actual size: 8.7" x 8.5" x 8" (HWD)

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With all the breakthroughs in office automation and computerization you'd think that by now there'd be an easy way to deal with envelopes. Well, there is: The AddressWriter™ from CoStar.

This neat little printer will shoot out a beautifully printed envelope, postcard, or label, complete with postal bar code, in seconds.

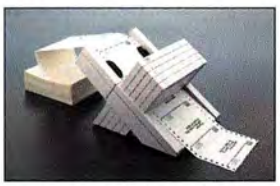


Actual printed samples.

The AddressWriter comes with Print Driver software and a special version of MacEnvelope.™ The Print Driver allows you to print mailing lists directly from Word,™ FileMaker® or any other program. MacEnvelope lets you custom-design envelopes, postcards and labels, and print text or graphics anywhere on the surface. It also manages multiple mailing lists, each with up to 1,600 addresses.

The AddressWriter is compatible with System 6 and 7, Adobe Type Manager,™ and TrueType.™

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For more information, or the name of a dealer near you, call 1-800-4-COSTAR or 1-203-661-9700.

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CIRCLE 87 ON READER SERVICE CARD.

Table 1: Features of E-Mail Software, continued

● = yes ○ = no	QuickMail 2.5 ★★★★½	WordPerfect Office 3.0.1 ★★★★
List price/no. of clients supported	$399/5, $599/10, $2,499/50, $4,699/100	$149/1, $495/5, $1,295/20, $5,995/100
Pros	Most user features.	Office-automation package that includes a group calendar, forms maker, and file manager.
Cons	Temperamental on large, heavily used networks.	Interface design falls short, because of program's scope.
Mail-server features		
Database storage	○	○
Single-instance messages	●	●
Single-instance enclosures	●	●
Max. no. of enclosures	16	99
Max. no. of users per server	3,200	100
User features		
Group setup	●	●
Keyboard addressing	●	●
Customizable forms	●	●
Voice messages	●	●
Graphic display	●	●
Peer-to-peer conferencing	●	●
Message sorting (priority/topic/sender/date)	p/t/s/d	d
Message encryption	○	●
Message filter	○	○
Mail log	●	●
Message unsend	●	●
Spelling checker	○	●
On-line help	●	○
Remote dial-up utility	●	○
Administrator features		
Group setup	○	●
Change of passwords	●	●
Server data compression	○	○
Dated-mail purge	●	●
Backup-and-restore utility	○	○
Directory-list import/export	●	●
Automatic user-group update	○	○
Company	CE Software P.O. Box 65580 West Des Moines, IA 50265 (515) 224-1995	WordPerfect Corp. 1555 N. Technology Way Orem, UT 84057 (801) 225-5000

Table 1 Criteria

Database storage — Are messages stored in a database?
Single-instance messages — Does the E-mail server maintain just a single copy of each message, regardless of the number of recipients?
Single-instance enclosures — Does the E-mail server maintain just a single copy of each enclosure, regardless of the number of recipients?
Group setup — Can you define separate workgroup listings for speedy addressing?
Keyboard addressing — Does the E-mail package provide keyboard shortcuts for menu selection?
Voice messages — Can digitized voice files be attached to mail messages?
Graphic display — Does the E-mail package provide a means of displaying enclosed graphics?
Message sorting (priority/topic/sender/date) — The means of sorting incoming mail that the E-mail package provides.
Message encryption — Are messages encrypted as they're sent from the E-mail client?
Message filter — Can users display only messages of a particular type or from a particular person?
Mail log — Does the client software maintain a log of outgoing mail?
Message unsend — Can senders retrieve messages from the server before recipients read them?
Remote dial-up utility — Does the package include software that provides remote access to the E-mail network?
Server data compression — Can the mail files be compressed to optimize space on the file server's hard disk?
Dated-mail purge — Can administrators specify dates after which mail will be deleted?
Directory-list import/export — Can a preexisting list of users be imported for speedier setup?
Automatic user-group update — Are all lists of groups updated automatically?

CoStar's new ergonomically designed trackball beats the competition hands down.

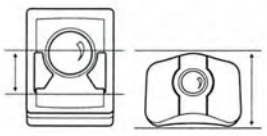


Old fashioned trackball

Stingray ergonomic trackball

A few years ago trackballs were a big idea. They provided more speed and precision than a mouse and took up less desk space. Unfortunately, over time they also felt big. And heavy. And uncomfortable.

Well, now there's a smaller, much more comfortable idea, The Stingray™ ergonomic trackball from CoStar.



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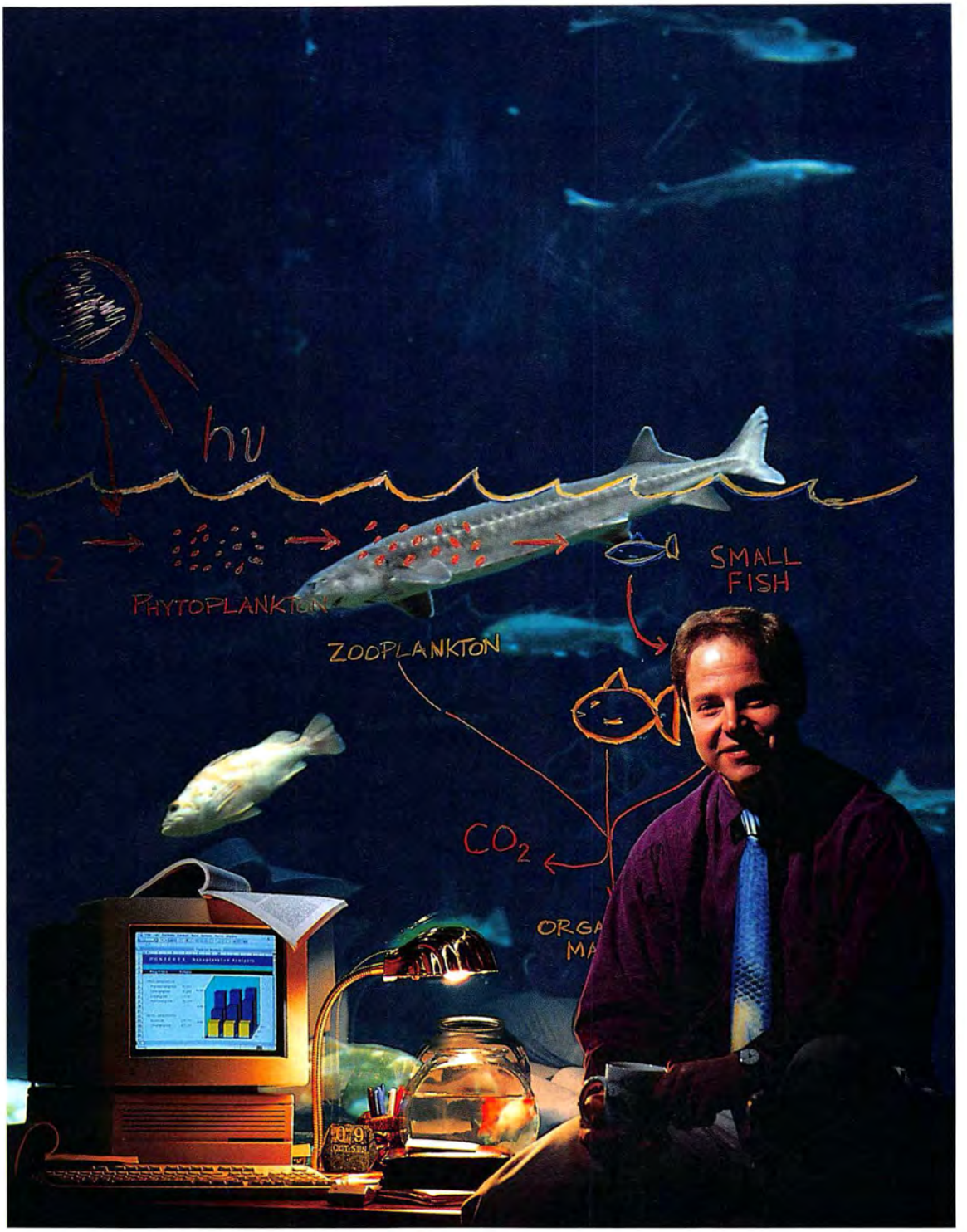


Stingray: available in Mac Platinum and Stealth Black.

CIRCLE 88 ON READER SERVICE CARD.

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TrueType Fonts	Yes	No	No
Multimedia Type Tutorial	Free	None	None
Electronic Catalog	Free	None	None
Type Applications	Yes	No	No
Shareware	Yes	No	No
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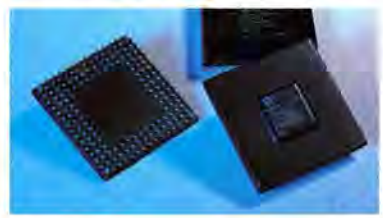
Want more Adobe fonts in your PostScript printer? Sonnet Technologies ([714] 261-2800) has introduced a family of font cartridges for the LaserWriter IINTX, QMS-PS series, and TI microLaser printers. The eight FontCards contain 10 to 18 faces each and retail for $399 to $499. Sonnet can also make custom cartridges containing the Adobe fonts of your choice.

By Aileen Abernathy



Visual aids: Aldus has finally upgraded Persuasion, and as expected, version 2.1 supports QuickTime animations. It also adds cross-platform compatibility with the Windows version and publish-and-subscribe for System 7 users. But the best feature may be Persuasion Player (right), a freely distributable slide-show utility that can run Mac or PC Persuasion files on Mac, Windows, *and* DOS machines, without Persuasion being installed. The list price remains $495; upgrades are $50.

ATM on a chip: One of the major bottlenecks in displaying and printing PostScript fonts is the time required to render character outlines. Now Adobe has transferred the rendering process to hardware, with breathtaking results. The Type 1 Coprocessor can render 2,000 characters per second, several times the speed of RISC-based printer controllers. Depending on where the chip is used — in CPUs, graphics cards, or printers — this speed boost could eliminate text jerkiness on-screen and let printers deliver pages at their rated engine speeds without the usual "first-page penalty." A competing approach from Destiny Technology ([408] 262-9400) provides a more universal solution to output bottlenecks. Destiny's family of RIDA chips offers superfast rendering of fonts *and* graphics (line art and halftones). The chips also speed the display and output of all rendering technologies, including PostScript, TrueType, and Agfa's Intellifont. Look for the first products exploiting the Adobe and Destiny chips later this year.



No surprise here: Letraset has officially given up on DesignStudio, Ready,Set,Go!, and StandOut! As of January 1, all U.S. rights to the three products reverted to the original developer, Manhattan Graphics ([914] 725-4924). Letraset will continue to market these products in Europe. Manhattan plans to continue developing and marketing at least one of the programs. My money's on DesignStudio, a good product that's suffered from inept marketing. Manhattan will probably put the three-year-old RSG out of its misery and offer long-suffering RSG owners a *very* attractive upgrade to DesignStudio. Letraset ([201] 845-6100) is focusing its energies on ColorStudio; its font programs, FontStudio and LetraStudio; and its new line of Fontek fonts. (ImageStudio is conspicuously absent from this list.) Speaking of LetraStudio, version 2.0 of this type-manipulation program is a major overhaul with a greatly reduced price ($249). Enhancements include TrueType support, improved font handling, custom envelope libraries, four-sided type distortions, the ability to import Illustrator line art, and greater speed and accuracy.

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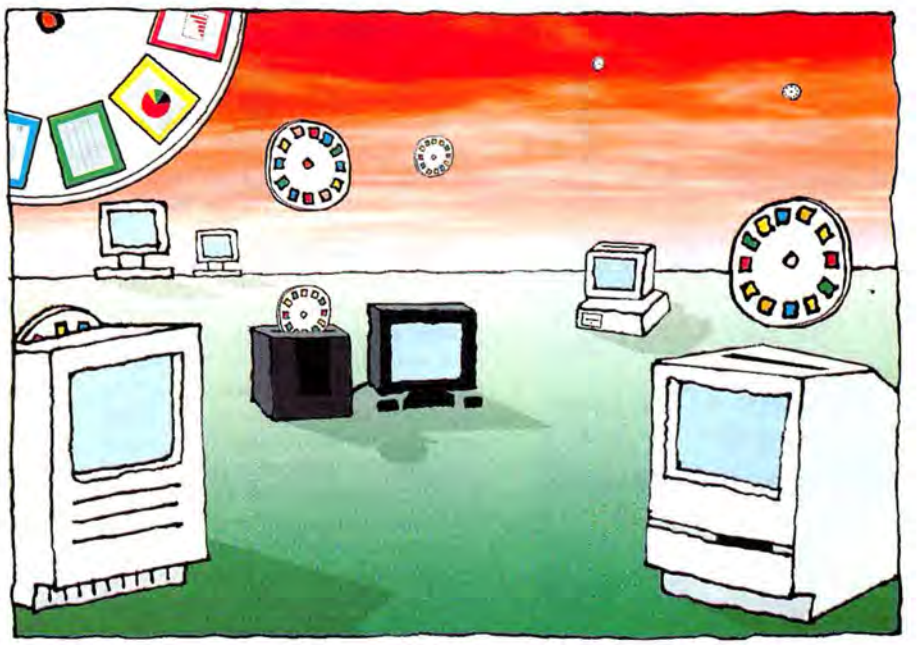
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CIRCLE 190 ON READER SERVICE CARD.

The Universal View Master

Adobe's new portable-PostScript technology will let you view and print fully formatted documents on any computer platform, without the original application or font.

By Henry Bortman



You've got a Mac. You do your page layout in QuarkXPress. The woman down the hall has a PC. She uses PageMaker for Windows. In the next building, they use Sun SPARCstations; FrameMaker is their application of choice. OK, at the count of 3, exchange electronic documents and try to view a coworker's document on your machine.

Why bother? you ask. It's hopeless. The only common denominator for cross-platform document exchange is ASCII text. Besides, everyone knows that computers are for *creating* documents, not *viewing* them. Even if you have the application that was used to create a document, you don't use it to view the document's contents: If you want to see what the finished document looks like, you print it out. So much for the myth that computers reduce paperwork.

That's today. Tomorrow will be different. Adobe Systems, always looking for new and better ways to make its PostScript page-description language a part of our daily existence, has come up with a solution to the universal problem of electronic-document exchange: a portable PostScript-document format (PPDF). PPDF isn't the real name — in fact, the format doesn't have a real name yet (its code name is Carousel), so we made one up. But the technology is real and under development, and it should be available sometime in 1992. When it is, you'll be able to use your computer — for the very first time — as a universal electronic-document reader.

With PPDF, it won't matter what platform a document was created on, what application it was created with, or what fonts it contains. Nor will it matter what platform you view the document on. You'll be able to look at a PPDF document by using one of the special "viewer" programs that Adobe will provide for many of today's popular computing platforms. If you have a PPDF-viewer application, you'll be able to view and navigate the document, which will display all of its original formatting and any PostScript graphics. And you'll be able to print it to any low-to-medium-resolution printer, even if it doesn't have a PostScript interpreter. Yes, that's right — PostScript graphics on a non-PostScript printer.

(PPDF should not be confused with Display PostScript. Display PostScript is a complete PostScript interpreter that gives you an on-screen display of any file that can be printed on a PostScript printer. NeXT, for example, uses Display PostScript as the basic imaging technology for drawing the contents of the computer screen, a role similar to that of QuickDraw on the Mac. PPDF viewers will serve a more specialized purpose.)

Making Magic

Adobe will provide four components — one primarily for developers, the other three for users — that make the PPDF magic possible.

From
Dull
to
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...our dynamic effects will add punch and excitement to any document or project.



System 7 Compatible

Includes these great features:

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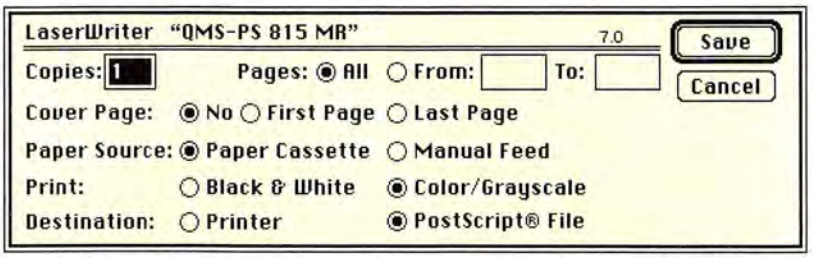


Figure 1: Today's LaserWriter printer driver can output a generic PostScript file. A future version may output files in Adobe's new portable PostScript-document format (PPDF). Such files would be readable by viewer applications on a variety of platforms.

The PPDF specification. This spec will be published and openly available, much as the Type 1 font spec is today. It will provide the foundation on which document portability will depend, but it will be of interest primarily to developers, who will be able to use it to incorporate PPDF technology into their own products. Based on Illustrator 3.0's PostScript file format, the PPDF spec will define a special set of PostScript commands that can describe documents — whether a single page or multiple pages — in concise PostScript code. It will also define compression routines that will let you reduce the size of PPDF files.

You can expect major operating-system vendors to build the ability to create PPDF files in to their printer drivers. In the future, it should be as easy to create a PPDF file as it is to create a generic PostScript file from within the Mac's Print dialog box (see Figure 1). Some application vendors may build in to their programs the ability to generate PPDF files directly from the Save dialog box — Adobe certainly will do this for applications such as Illustrator. It's even conceivable that PPDF output will become available from the Save dialog box in *any* application, using the XTND file-translation capability Apple has promised for future versions of the Mac operating system.

PPDF viewer applications. Don't be surprised to see Adobe provide viewer applications for the Mac, Windows, Sun, and NeXT operating systems, for starters. Adobe has even shown a PPDF viewer running in a vanilla 640K DOS partition. Adobe will license the technology to third parties, who will provide PPDF capability for other platforms. The viewer will incorporate very fast decompression and PostScript-rasterizing technology, which will enable you to actually *read* PPDF documents rather than wait for them to draw themselves on-screen.

The viewer will contain a hypertextlike navigation capability. PPDF-file-generating applications that support this feature will be able to create documents that contain tables of contents to take you from one point to another with a click of the mouse (see Figure 2). If you have an electronic newspaper article that jumps from page 1 to page 31, for example, a click on "see page 31" will take you to the precise spot where you need to continue reading.

PPDF-conversion utilities. Printer drivers on different platforms—Windows machines and the Mac, for example — don't all generate the same type of PostScript code. The commands used, and even the structure of the files generated, can vary from one driver to another. In addition, many applications output custom flavors of PostScript. It would be difficult to create viewers that could handle all these types of PostScript files efficiently, but along with each viewer, Adobe will ship a utility that can read these different varieties of PostScript files and output equivalent PPDF-compliant files. Thus, virtually any PostScript file can be converted to a format that a PPDF viewer can open.

Fonts. Along with the viewers, Adobe will provide specially designed Multiple Master fonts to simulate the characteristics of the fonts used in the original documents (for more on Multiple Master fonts, see "The Future of Type?" July '91, page 187). If your system has the fonts that were used to create the original document, your viewer will use them. If not, it will use Multiple Master fonts to do font substitution on the fly. Justification, line breaks, leading, and other attributes of the original document will all be preserved. Unwanted reformatting will be a thing of the past.

Beyond the Future

Although the initial PPDF viewers won't allow users to edit files, third-party-application vendors are likely to build this

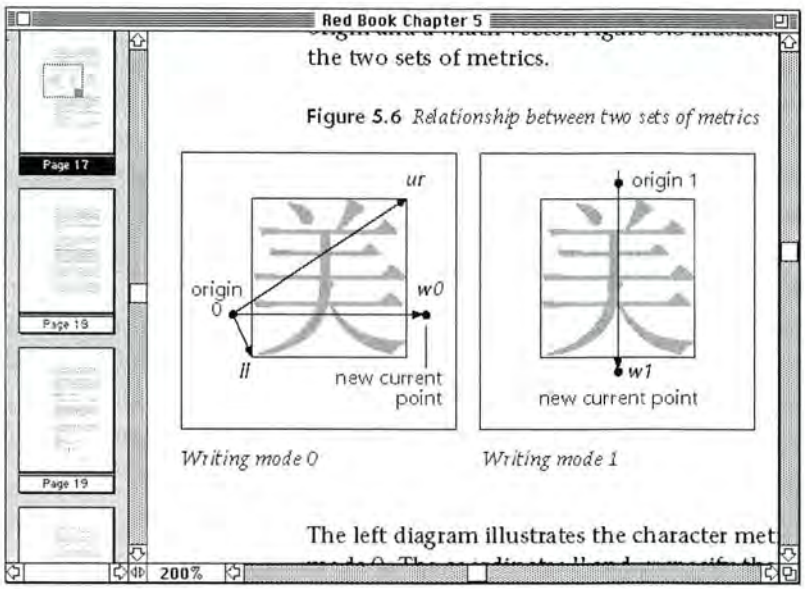


Figure 2: This prototype of the Mac PPDF viewer application shows a page from the fonts chapter in Adobe's *PostScript Language Reference Manual*. The scrollable thumbnail sketches at left serve as hypertext links to other pages in the electronic manual.

capability in to future versions of their products — but it won't be easy.

PostScript files created by today's applications don't contain any information about the format of a document — column widths, indents, tabs, where the paragraphs begin and end, and so forth. All that PostScript files contain are commands to draw text characters, lines, and curves at specified points on a page. The PPDF spec, on the other hand, will define commands that let applications include underlying document-formatting information in a PPDF file. This extra information will enable future versions of such applications as PageMaker and QuarkXPress to read PPDF files. And don't be surprised to see Adobe add PPDF capabilities to Illustrator, moving it toward handling multipage documents and perhaps even to challenge today's page-layout-market leaders.

For PPDF-file editing to work, applications will have to take advantage of PPDF's ability to save the document-formatting information and be able to read, or import, PPDF files containing this information. But imagine, for a moment, that the makers of the major page-design applications *did* decide to implement these capabilities. Not only would you have the ability to read a document created in any application on any platform but you would also be able to edit it.

And while we're touring fantasyland, why stop at reading these documents on desktop (or laptop) computers? Maybe all you'll need is a CD-ROM player with high-resolution display optimized as a PPDF viewer. Suddenly *The Encyclopedia Britannica* becomes much more accessible. Or maybe you'll sit at home being a couch potato, using your remote control to browse through PPDF newspapers and magazines you call up on demand for viewing on your HDTV screen. (You probably don't want to try it from a Nintendo-class machine, though; the performance might be a little disappointing.) Later this decade, your *MacUser* subscription will be delivered to your electronic mailbox instead of to the mail room, to the advantage of trees everywhere.

Back to the Present

So when do you get your hands on this stuff? Adobe says 1992 — which means December 31, 1992, by my reckoning. And don't be surprised if it slips a quarter or two. Keep in mind that Adobe hasn't yet announced a product, although it's likely that for each platform supported, Adobe will bundle into one package the viewer, the PPDF-conversion utility, and a set of special Multiple Master fonts. Mum's the word on price too. But look at it this way: The folks at Adobe want everyone to have this stuff. And there's one surefire way to do that: Sell it cheap. Real cheap.

Henry Bortman is *MacUser*'s technical director.



CIRCLE 94 ON READER SERVICE CARD.

ZiffNet/Mac

is the 24-hour on-line resource for MacUser *and* MacWEEK. *For the latest news, reviews, and electronic supplements, log on today. ZiffNet/Mac (also known as Zmac) is available on the CompuServe Information Network. You can connect to us by typing GO ZMAC on CIS or by following the instructions under "How to Join ZiffNet/Mac." Here are some of this month's ZiffNet/Mac highlights.*

DiskSwitch Gives New Meaning to *Volume Control*

If you mount many volumes on your System 7 desktop, you're probably spending a lot of time clicking on the Desktop button in Open and Save dialog boxes. Here's a way to bypass the desktop and go directly to another hard disk, a floppy disk, or an AppleShare volume. *MacUser*'s DiskSwitch puts a pull-down menu into the Open and Save dialog boxes so you can immediately "switch" volumes. DiskSwitch was programmed by Mike Throckmorton, an Ann Arbor, Michigan-based developer and author of another *MacUser* "Beating the System" utility, ZMakeAlias (December '91, page 234). DiskSwitch is available exclusively on ZiffNet/Mac (Zmac), *MacUser*'s on-line service hosted by CompuServe. It's available in Library 3 (Utilities) of the MacUser Forum or Library 3 (INITs) of the Download & Support Forum; the filename is DSKSWT.CPT. You need Compact Pro, also available on Zmac, to decompress the file.

Which Mac Should I Buy?

This perennial question has stumped many potential Mac buyers, and the choice is getting more complicated. *MacUser* now delivers another tool to help you make hardware purchases. Which Mac Should I Buy? is a HyperCard stack designed to help you match your needs to a machine. Developed by HyperCard expert Danny Goodman with the help of the MacUser Labs staff, this stack leads you through the critical questions. Which Mac Should I Buy? contains the complete technical specs of all current Mac CPUs, including the Quadras and the PowerBooks. It is available exclusively through Zmac. You can download the file WCHMAC.SEA in Library 7 (Reference) of the Download & Support Forum.

StuffIt Scripts Automate Archiving

All users who spend time on-line know about the shareware compression program StuffIt. But they may not know that StuffIt Deluxe, the commercial version, has a built-in scripting language. This month's script shows you how to program StuffIt Deluxe to automate backups. These scripts work with versions 2.0 and 3.0; the latter version should be available by the time you read this. The scripts are available in Library 5 (Scripts & Templates) of the Download & Support Forum. The filename is STFSCR.CPT.

How to Join ZiffNet/Mac

Here's how you can get access to ZiffNet/Mac:
•If you're a CompuServe (CIS) user, just type GO ZMAC at any ! prompt.
•If you're not a CIS subscriber, you can sign up for ZiffNet/Mac by following these directions:
1. Call (800) 635-6225 or (614) 457-8600 to find your local access number.
2. Set up your modem and telecommunications software with the following standard Mac settings: 8 bits, 1 stop, and no parity.
3. Dial your local access number. When connected, press Return. You'll see the following prompts on-screen. Your responses are printed in boldface type.
Host Name: **CIS**
User ID: **177000,5200**
Password: **Z*MAC**
Agreement Number: **Z12D9014**
4. You will then be prompted for additional information, including a credit-card number for billing purposes. If you cannot bill to a credit card, call the CompuServe customer-support line listed below. Sign-up is free, but normal access time is billed at $12.50 per hour.
5. Call CIS again with your user ID and password. A new password will arrive in the mail within ten days.
For more information, call CompuServe customer support at (800) 848-8990 or (614) 457-8600.

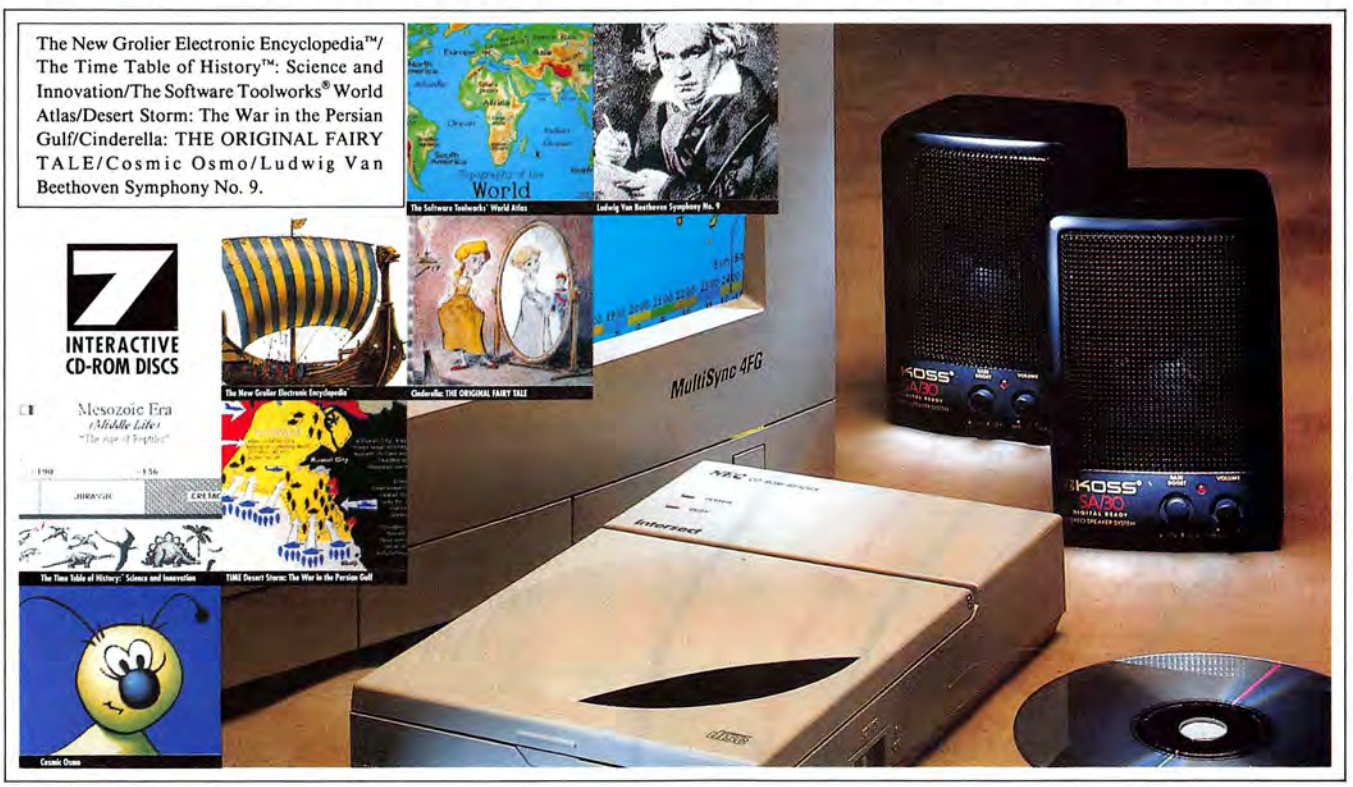
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Hubs	*Cost Per Node*	*Ports*	*Retail Price*
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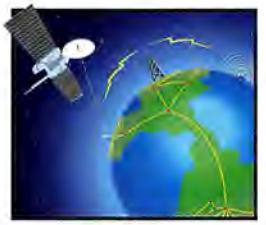
You can now boot a Mac without *a local floppy or hard drive, thanks to The Diskless Mac (TDM). This $149 package from Sonic Systems ([408] 736-1900), which enables a Mac to be booted from a network server, consists of a ROM upgrade for a NuBus Ethernet card and software for both the server and the clients. TDM lets a client Mac download a complete operating system (and optimally, applications) from a server onto a RAM disk that TDM has created.*

By Henry Bortman

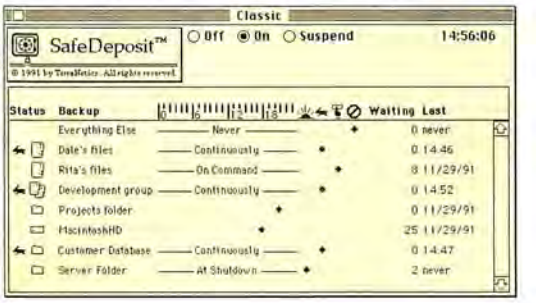


Hubs: Cayman's GatorBox router/gateway, popular in mixed Mac/UNIX environments, will soon be a hub as well. The GatorStar GX ($3,895) will combine the AppleTalk-TCP/IP-DECnet routing capabilities of the original GatorBox, as well as its ability to run GatorShare and GatorPrint file- and print-sharing software, with a 24-port LocalTalk hub. Dayna's 8-port 10BASE-T DaynaSTAR MiniHub ($449) is helping drive down the cost of Ethernet networking, but the MiniHub offers no management capability. Nuvotech is going to the airwaves with its new 24-port NuvoStar for LocalTalk networks. The NuvoStar ($1,495) can be fitted with a RadioBridge ($1,595), a spread-spectrum radio link that allows networks to be expanded even where wiring is problematic. Farallon is also offering a 24-port LocalTalk hub (StarController PN377, $1,895) as well as an upgraded version of its 12-port hub (StarController PN357, $1,495). And at long last, both products let you do network management over the network instead of through a special connection.

WAN routers: Transware's wide-area-network TransTalk half-router ($899) can now support Hayes' ISDN System Adapter ($1,599) for wide-area links among LocalTalk networks over ISDN phone lines. The TransTalk also transmits data over asynchronous links at speeds as high as 57.6 Kbps as well as over synchronous Switched 56 and X.25 PADS links. (415) 968-8888. If you want to cover a *really* wide area, check out Engage Communication's SyncSatellite router. The SyncSatellite can "publish" files and folders to many sites simultaneously at speeds as high as 64 Kbps, using commercial satellite links. Pricing: on the publisher (uplink) side, $4,490; on the subscriber (downlink) side, $2,995 to $3,249 (hardware) plus $100 per user (software license). (408) 688-1021.

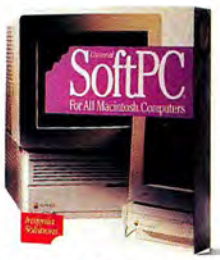


Playing it safe: Looking to back up your AppleShare server? SafeDeposit, from TerraNetics ([818] 446-7692), does it automatically — and continuously. SafeDeposit monitors the activity on your server and backs up new or modified files as soon as they are created or changed on the server. $595 per server; $4,500 for a ten-server kit. And from PCPC ([800] 622-2888), version 2.1 of NetStream can perform a complete backup of AppleShare 2.0.1 servers without shutting them down. NetStream can also back up users' local hard-disk volumes. Basic package, $599.95; ten-user license, $599.95.



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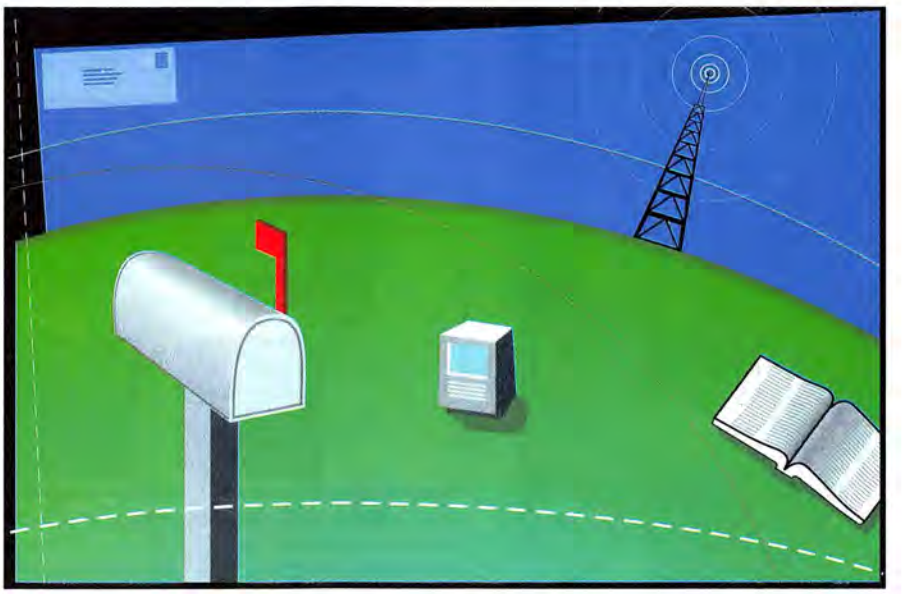
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CIRCLE 152 ON READER SERVICE CARD.

On Beyond E-Mail

Apple's Open Collaboration Environment will make E-mail and messaging universally available for System 7 users.

By Henry Bortman



Electronic mail — some folks can't live without it, others can't stand it. I fall into both categories. I probably send a couple dozen E-mail messages each day and read twice as many. But it's not an experience I enjoy.

Apple has some big plans in this arena that are going to make my life easier — and probably yours as well. These plans go by the name of Open Collaboration Environment (OCE). Formerly dubbed AppleMail and initially feared to be an attempt by Apple to horn in on the lucrative third-party E-mail business, OCE will *not* be a competitor to Microsoft Mail and QuickMail. Yet it will offer users far more than any of today's E-mail systems do.

OCE is a set of extensions to System 7 that will make E-mail and messaging capabilities available throughout the Mac environment, not just from within dedicated E-mail applications. OCE will provide services in three key areas: store-and-forward messaging and mail; directory services; and authentication, privacy, and digital signatures. There will, however, still be a place for dedicated mail servers and E-mail applications for users who want extra performance and a richer set of features.

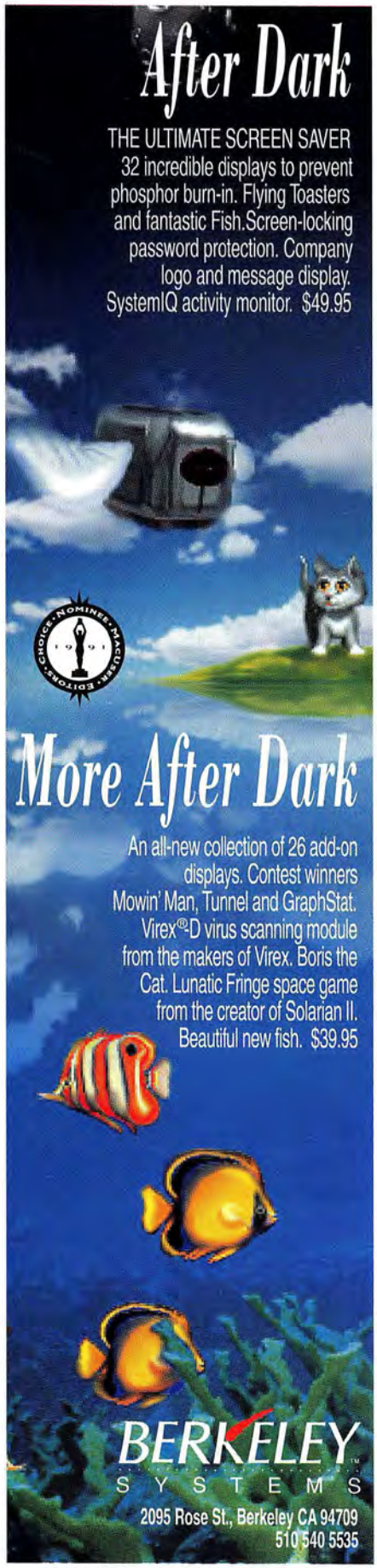
Much like QuickTime, which adds multimedia capabilities to the Mac's operating-system software, OCE will benefit all System 7 users. OCE programming interfaces will allow any Mac developer to build applications that take advantage of its new system features. It will also provide application-programming interfaces (APIs) to developers who want to plug additional services in to the back end of the OCE framework alongside the services provided by Apple (see Figure 1). Like QuickTime and 32-bit QuickDraw, OCE will probably be implemented first as a stand-alone extension to System 7 and will be integrated into the core system software later.

Apple doesn't plan to release the details of how OCE will work or what the user interface to OCE services will look like until the middle of 1992. At press time, no information was available on when end-user products might hit the streets. However, Apple has sketched the broad outlines of its plan. Let's take a look at some of today's problems and how OCE might help solve them.

Messenger Service

Graphical user interfaces are great. Fonts, formatting, pictures, drawings — you can really make your message stand out. But when the time comes to *send* the message to someone, if E-mail is the courier, all these goodies go out the window (no pun intended). You get ASCII text. You might as well be on a dumb terminal. The frame the E-mail application draws around your message may be full of buttons, pop-up menus, and scroll bars, but the message content is limited to unstyled, unformatted ASCII characters.

If you want to send a formatted document, you have to *attach* it to your message. You know the routine. You're in, say, QuarkXPress.



CIRCLE 21 ON READER SERVICE CARD.

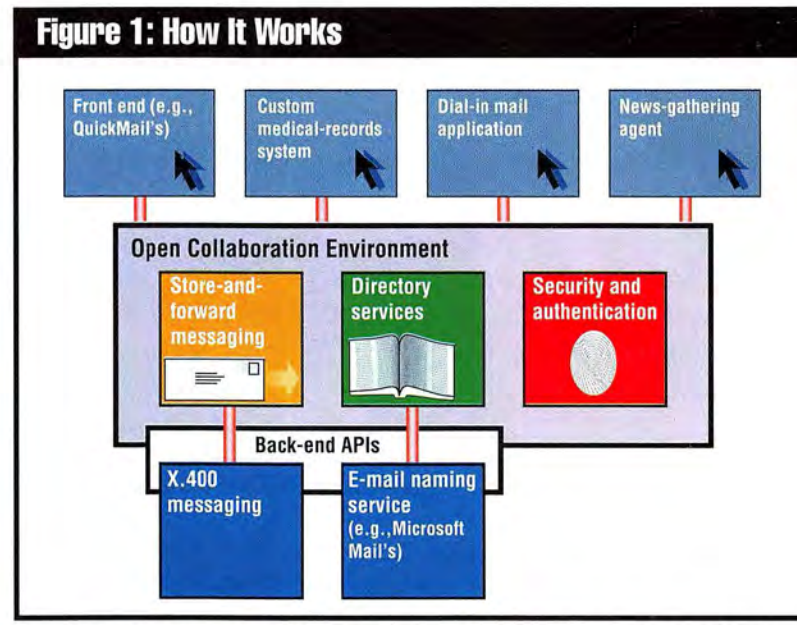


Figure 1: Apple's OCE (Open Collaboration Environment), which will provide E-mail and messaging capabilities throughout the Mac environment, will have an open architecture. Developers will be able to create plug-in alternatives to OCE's built-in directory and messaging services, and OCE services will be available to any third-party application that wants to use them.

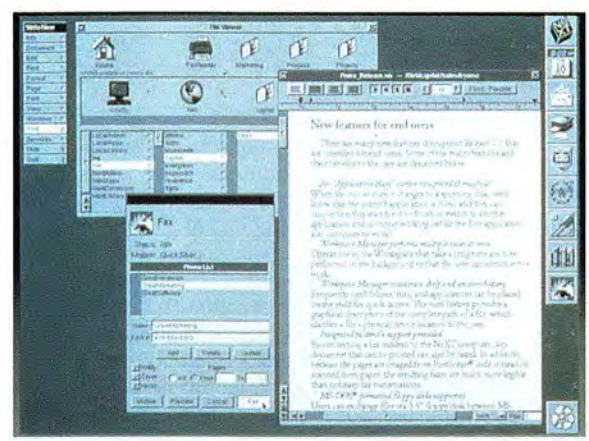


Figure 2: The NeXT computer provides systemwide mail and fax capabilities that are accessible from within any application. With OCE, Mac users will get similar capability, although it will most likely have a different interface.

You've just finished working on a layout. You want to send it to a colleague. You leave QuarkXPress, open your E-mail program (if you're lucky, you have enough memory to keep QuarkXPress running), create a message ("Here's the file"), attach the QuarkXPress document to it, send the message, and then go back to QuarkXPress.

Wouldn't you rather be able to pull down QuarkXPress' File menu, select a Send command, and electronically forward — or fax — the document directly? The NeXT computer offers such a capability (see Figure 2). With OCE, the Mac will too (although the interface may be quite different). Messaging capability will be systemwide, available for use by any application whose developers choose to take advantage of it.

OCE will also open up messaging to users who don't have an E-mail system. All the E-mail applications available for the Mac today require a centralized server to act as a message-sending and -receiving switch. When you send a message to another user, you are actually sending it to the server. The server then notifies the recipient that mail is waiting, and the

recipient reads it from the server.

With OCE, you will be able to send messages to other users directly. But what if your computer isn't on the network when I want to send you a message? Not to worry: OCE will provide store-and-forward messaging. Even if you have gone home and turned off your computer, I can still send a message directly to you; my computer will store the message until your computer is available, and it will then forward the message. And an extra bonus: You'll be able to do this remotely via modem — even if neither computer is on a network.

This store-and-forward capability will open the door to a new class of applications that have as part of their function the routing of data from one person to another. A medical-records system using OCE might enable your medical chart to follow you electronically, rather than on paper, as you go from office to office to take a battery of tests. OCE store-and-forward messaging will also simplify the development of user-trainable software routines known as agents. An agent will, for example, be able to monitor a news wire for stories that contain certain key words and phrases and then route those stories to your in box.

Message routing and agents can be handled by custom applications, but by building such capabilities in to the Mac's operating system, Apple will provide a standard means of accomplishing such collaborative tasks. Developers will have a framework on which to build and will know that if they follow the rules, what they create will be compatible with what others create. In addition, OCE will include as one of its messaging interfaces a set of routines called OMI (Open Messaging Interface). Developed jointly by Apple, Lotus, and IBM, OMI will aid in porting mail-enabled applications across platforms such as the Mac and the PC.

What's in a Name?

It's nice to know that OCE will let you send messages to everyone in the galaxy, but how are you going to find out their addresses? In today's messaging world, that's not always a simple task. If you're a QuickMail user on a small network with a single mail server, you can send a message to other QuickMail users just by double-clicking on their name. But suppose that your network's a little more complex: several departments, each with its own mail server. You want to send a message

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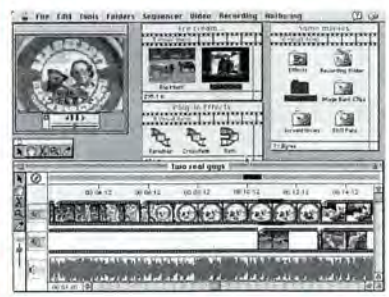
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CIRCLE 18 ON READER SERVICE CARD.

to a user in another department. She just got hired. Her address is listed on her mail server, but your server hasn't been updated yet to reflect the change. You can find it if you know the secret path through QuickMail's address dialog boxes, but it's not nearly as easy as getting the address of someone on your own server.

Let's add another degree of difficulty. Try to send an E-mail message to a user in another company, a company that uses Microsoft Mail. We'll ignore the fact that, until recently, no one even made a gateway to integrate QuickMail and Microsoft Mail. Pretend that you've got the gateway. From within QuickMail, try to learn the E-mail address of the Microsoft Mail user you want to communicate with. Without an assist from your system administrator, you can't do it.

Fact is, even when your task is as simple as addressing a message, you must usually use a mail system that both you and your intended recipient have in common. I have one group of people I communicate with via QuickMail, another via AppleLink, another via MCI Mail, another via CompuServe, and another via the Internet. I used to have to connect to all five services each day if I wanted to make sure I got all my mail. Now that *MacUser* has installed a couple of mail gateways, the

Figure 3: Digital Signatures

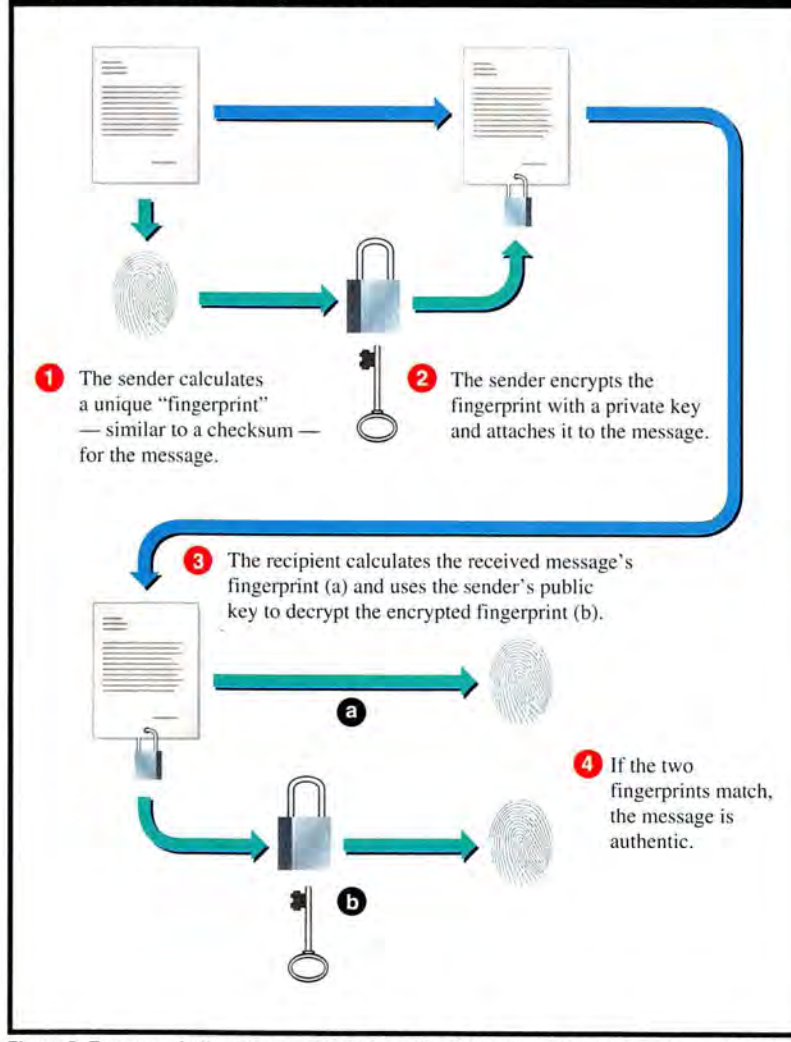
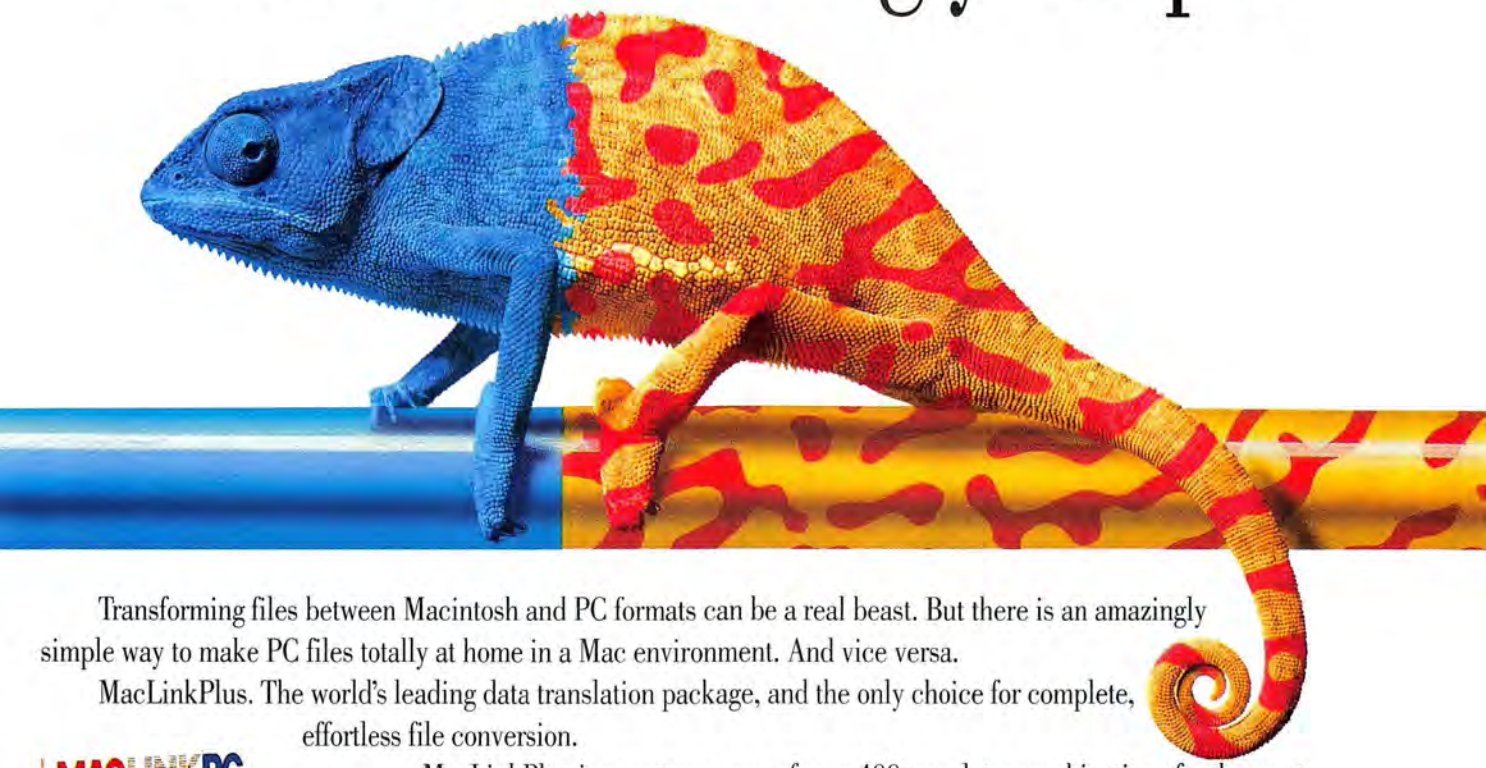


Figure 3: To ensure both privacy and data integrity, OCE will provide the digital equivalent of sealing wax. A dual-key encryption system will make it possible to tell whether a document is a phony or has been altered or garbled in transmission.

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number is down to three. Don't laugh — that's progress. And it's still the case that if I want to communicate with Microsoft Mail users, I pick up the phone.

OCE will help tremendously in solving problems with message addressing. It will provide a common means of naming and identifying users, regardless of the mail system they use, and an easy way for people to address messages across mail systems. Developers of commercial E-mail programs will be able to integrate their existing naming services into the OCE directory structure.

But OCE will do more than aid in the integration of existing E-mail naming services. It will also expand the notion of directories beyond the lists of user names and network addresses that are maintained by today's E-mail servers, to include any arbitrary collection of data — phone numbers, addresses, hair color, or whatever.

This capability will make it easier for folks like me to organize our lives. Right now, for example, I keep three applications open on my desktop all the time: Focal Point, for storing names, addresses, and other information about my contacts; Alarming Events, for keeping my appointment calendar; and In Control, for managing my to-do list. Whenever someone leaves me a voice-mail message, I enter the call in my In Control to-do list. I have a column in this list for the person's phone number. But if the caller doesn't leave me a number, I have to switch to Focal Point to look it up. I copy it from Focal Point and paste it into In Control. If the person wants to make an appointment with me, I go to Alarming Events and enter the vital stats there as well. And if I'm going to drive to the meeting, I'll need the address too. So back to Focal Point. Twice. Once to get the phone number (cut, switch to Alarming Events, paste) and a second time to get the address (cut again, back to Alarming Events, paste again).

I do stuff like this all day long. It's tedious, and I hate it. But OCE is going to help me. It will let me consolidate information stored in various applications and access it as if it were all in one master directory. And I'll be able to access it directly from any application that builds in the proper hooks.

Safe Computing

Once upon a time, there was a big company that published computer magazines — I won't mention any names. It had a special form its employees used for getting reimbursed for business expenses. There wasn't anything particularly noteworthy about the form except that each one had a unique red number in the lower left corner. That number was the way the big company's accounting department *knew* that a form was valid. Authentic.

The company's employees, being computer-literate, got tired of filling out the forms by hand. "This is a big waste of time," they told the accounting department. "We want to use Excel." Eventually, the accounting department relented. It let the employees use Excel to create simulated expense-report forms. But it made them print them out; it didn't provide any way to submit the forms electronically. And it still required that each Excel printout be accompanied by a *real* expense-report form — blank, except for that radiant, red, unique, authentic number in the lower left corner.

There's a moral to this story. But more importantly, there's a connection to OCE. Even after all the problems of routing data messages — an expense report, for example — from one place to another are solved, there are still some hurdles. How do you know who a message is really from? Suppose I sneak over to your computer and send a message in your name? How do you know that the contents of a message haven't been tampered with? What if some sly hacker intercepted the message, altered it, and sent it on its way? And what if you don't want anyone peeking at the contents of your message, even if they don't alter it? To a snoop with a protocol analyzer, the information passed around in an AppleTalk network is an open book.

OCE will offer solutions to such problems too. It will use a dual-key encryption system to provide digital signatures to messages. All users will have two unique keys that are numerical sequences: a private key, which no one else will have access to, and a public key, which they will give to people to whom they plan to send authenticated messages. When users want to send an authenticated document, they don't encrypt the document itself. Instead, they use OCE to generate a "fingerprint" for the document — a unique number, similar to a checksum, based on the contents of the document. They then encrypt the fingerprint with their private key and attach the encrypted fingerprint to their message.

When an E-mail message arrives at its

destination, the recipient uses OCE to generate a second fingerprint for the document and then uses the sender's public key to decrypt the original fingerprint, which was attached to the message, and compare the original fingerprint with the new one (see Figure 3). If the two fingerprints don't match, either the sender is a phony or the document has been altered or garbled in transmission. This will make possible the electronic transmission of legally binding documents — and maybe even expense reports.

OCE will also offer a means of authenticating a program-to-program session — such as one spreadsheet program directly communicating new data to another — and of encrypting the data that travels from one computer to another during that session. For example, if you wanted to update a legal document that resided on another computer, you could do so safe in the knowledge that unauthorized users couldn't modify the document and that no one could eavesdrop on the contents of your update session. Although your document wouldn't be stored in encrypted form on either of the computers involved in the session, it would be encrypted before being transmitted and decrypted on receipt. Apple uses the word *privacy* to refer to the encryption/decryption of message contents and says that it will happen quickly enough to be practical without custom-hardware support.

Coming Soon

It's rather uncharacteristic of Apple to announce that it is going to announce something before it actually announces it. Why it chose to reveal the broad outlines of OCE well in advance of its release date is as much a mystery as the details of the new software are. Presumably all this good stuff will have a user interface — it wouldn't be Mac software if it didn't — but at press time, even *MacWEEK* hadn't begun to speculate on OCE's look and feel. Apple also hinted in its preannouncement that it will provide "servers" as part of its OCE offering. But exactly how much of this stuff Apple will put into the Mac's operating system, how much Apple will sell as separate commercial products, and how much it will leave to third parties is also shrouded in mist. Look for details "early in 1992."

***MacUser* technical director Henry Bortman looks forward to the day when Apple will tell him how OCE *really* works.**

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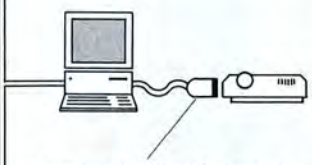
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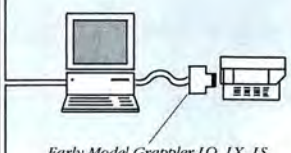
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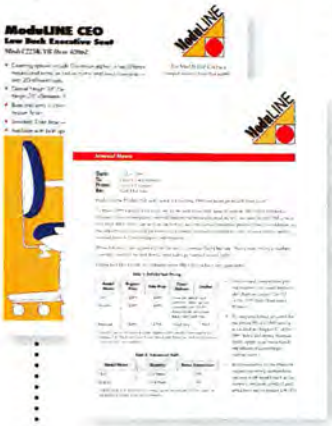
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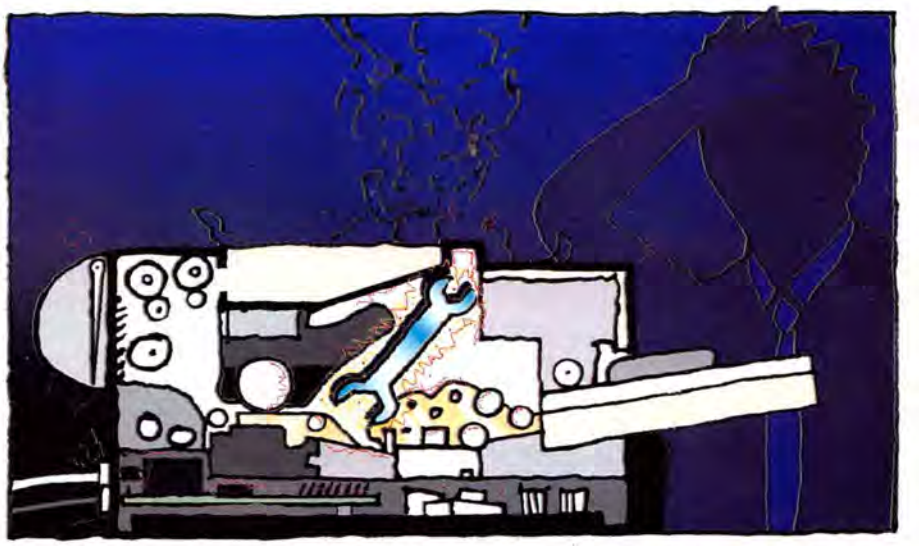
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'I Can't Print'

You can often solve common printing problems by using an informal trial-and-error approach.

By Kurt VanderSluis



In troubleshooting printer problems, the best approach is first to figure out the category of problem you're facing — network, hardware, or software — and then to try to fix it by changing different elements within that category. This strategy is often powerful enough to solve the problem without a formal investigation.

Recently, for example, one of my clients was unable to print a nine-page Microsoft Word document that contained both text and graphics. He was trying to print the file from a Mac Portable in background mode (using PrintMonitor) to a GCC BLP IIS, a PostScript printer that uses the same LaserWriter driver as the Apple LaserWriter IINT.

The client's description: "After starting the print job, I walked away from the Portable. When I returned, I saw an alarm icon blinking and a message saying that PrintMonitor needed my attention. When I brought PrintMonitor's window to the front, it said that the document was OK but that it couldn't be printed because of a PostScript error."

To troubleshoot the problem, I first repeated the client's procedure, with one exception. I printed the document with PrintMonitor in the foreground so that I could see all the status messages coming from the printer.

The print job proceeded normally at first, and I recorded the status messages as they appeared. PrintMonitor told me that there were nine pages to print and that the LaserWriter driver was looking for the BLP. After the driver connected with the printer, I watched the printer's status messages: It was starting the job, processing the job, and preparing the data. Then the BLP reported:

Error: stackunderflow; Offending-Command: exch.

This message came from the BLP and not from the Mac, so the error must have occurred as the printer was trying to turn the PostScript instructions sent by the LaserWriter driver into a printed page. (PostScript is a page-description language from Adobe Systems that tells the printer what to put where on the page. Microsoft Word generates QuickDraw instructions, which the LaserWriter driver converts into PostScript and sends to the printer. The printer interprets the PostScript instructions to produce a printed page.)

I checked the BLP's manual, which cryptically said that this message was generated by the printer's standard error handler. The manual said that I should check the *PostScript Language Reference Manual* (Addison-Wesley, 1990) if I wanted more details. (That book, from Adobe, is the definitive guide to PostScript.) I also checked my favorite PostScript book, *Programming the LaserWriter* by David Holzgang (Addison-Wesley, 1991).

These manuals said that the stackunderflow error occurs when the LaserWriter driver sends the printer a PostScript command (in this case, "exch") that tells the printer to manipulate data that's not in its memory. Since this PostScript error pointed directly toward the software, I had answered the question "Is it the hardware, the software, or the network?"

Next I turned my attention to the software involved: the application (Microsoft Word

4.0), the LaserWriter driver, PrintMonitor, and the Mac's System file. I also printed the BLP's "Start Page," which shows what version of PostScript is in the printer. A quick call to GCC confirmed that the version I had, version 52.3, was the most recent PostScript interpreter.

The Portable was running mixed system software — System 6.0.7 with LaserWriter driver 7.0 (the version that comes with System 7) — in order to be compatible with the LaserWriter drivers on the office's other Macs, which were running System 7. I thought there might be a conflict between the LaserWriter driver and System 6.0.7, even though this configuration had been used successfully on the Portable for quite some time.

I tried printing the same Word file from a Mac that was running a straight version of System 7 and got the same error message. Because neither the Portable's mixed system nor the straight System 7 configuration worked, I also tried a straight System 6 configuration. On the Portable, I replaced LaserWriter driver 7.0 with version 6.02 of the LaserWriter driver and Laser Prep files, which come with System 6.0.7. Running under System 6, the document printed without error.

My printing results with these three scenarios demonstrated that it wasn't a system-configuration problem but rather a conflict between Word 4.0 and LaserWriter driver 7.0. I checked the version number for Microsoft Word; it was version 4.00D, which is System 7-compatible. However, Microsoft Word files often contain data created by other programs. I knew that the problem file included graphics that had been imported from SuperPaint. There was also the possibility that the document had originally been created in another word processor. Perhaps one of those previous applications had left a remnant of something that was incompatible with LaserWriter driver 7.0.

My troubleshooting strategy had helped me find a "solution" — I now had a printed document — but the solution caused its own problems. Although the file could be printed, the client didn't want to maintain a network of mixed printer drivers. Version 7.0 of the LaserWriter driver is incompatible with version 6.02, which means that the users of these two versions would constantly be resetting and waiting for the printer. Some network managers solve the problem of incompatible printer drivers by assigning one printer to users with System 6 versions of the LaserWriter driver and having a second printer for people with LaserWriter driver 7.0.

I needed a long-term solution that would let my client print the document without having to maintain a network of mixed printer drivers. To find the best solution, I had to resort to a more sophisticated analysis of the problem, which I'll detail in my next column.

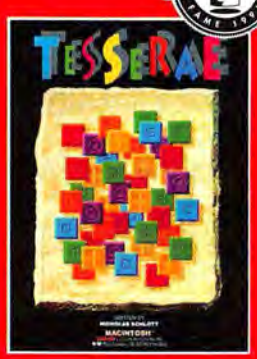
Kurt VanderSluis is president of The Network Group, a training and consulting firm in Seattle.

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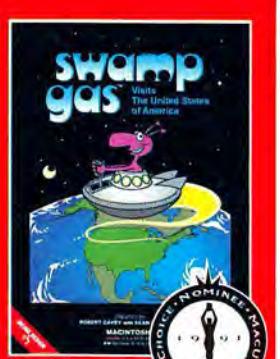


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By James Bradbury

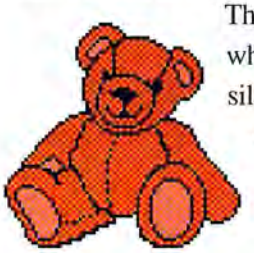


Food, glorious food: Forget those wisecracks about personal computers and recipe files. TeleTypesetting is now publishing an electronic cookbook called Digital Gourmet ($69) with more than 1,000 recipes and the ability to instantly determine the nutritional content of any dish. (616) 734-9700. ⪢ Successful gourmands should probably hedge their bets by investing in something to control the impact of all those calories: DINE Systems' MacDINE II ($299) is an exercise-and-nutrition program that helps you monitor your caloric intake and expenditures as well as keep track of nutrition. (716) 688-2505. Raymond Software's MacDiet ($495) is a dietary-planning CD-ROM-based HyperCard stack with user-editable recipes and a complete USDA nutrient database. (408) 395-6157. Finally, Nutridata Software has announced two $59.95 programs, Diet Balancer and Cooking Companion. The former lets you compare your diet with USDA recommendations; the latter evaluates user-entered recipes for nutritional content. (914) 298-1308.



Dirty software: Green may be trendy at Apple, but we doubt that you'll ever see a greener program than Mum's the Word Plus, which comes from Terrace Software, in Massachusetts. The $165 Mum's Plus combines elements of a drawing program and a database program to let you plan landscapes and gardens. Bulbs not included. (617) 396-0382.

Just for fun: Still haven't decided to get a CD-ROM player? Here are two new titles to tempt you. Sherlock Holmes: Consulting Detective is a $70 interactive mystery game with more than 90 minutes of full-motion (albeit highly compressed) video. Publisher ICOM Simulations says that Sherlock is already a best-seller in Japan. You'll need a color Mac along with your CD-ROM drive if you want to solve the three mysteries included. (708) 520-4440. ⪢ For the preschool crowd,



The Voyager Company has released A Silly Noisy House, which could be described as Raffi meets Cosmic Osmo. The silly noises are in digital stereo that plays off the disc while the 4.5-meg house sits on your hard disk. It's colorful, well drawn, cute, and full of animated teddy bears. ⪢ The Voyager Company also has something new for grown-ups. The Extended Books series consists of conventional books republished in a special PowerBook-friendly format for $19.95 each. They're designed to be read entirely on a PowerBook, with special hypertext annotations. The first three titles are Michael Crichton's *Jurassic Park,* Martin Gardner's annotated edition of Lewis Carroll's *Alice in Wonderland,* and Douglas Adams' *The Hitchhiker's Guide to the Galaxy.* Our nominees for future titles: Douglas Hofstadter's *Gödel, Escher, Bach,* William Poundstone's *The Recursive Universe,* and *anything* by Umberto Eco.

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Making Connections

Beat the loneliness of the personal-computer user by plugging in to a vast network of information and help.

By Steven Bobker



Connections. The very word should make you think of computers — conjuring up visions of LANs and servers and information-systems management and all the other arcana that personal computing was supposed to avoid. But *connections* has another meaning for the personal-Mac user, and that's the one we're going to discuss here.

Believe it or not, almost all Macs are tied to some sort of physical network. Many of you access your printer via a local network, and if you have one or more SCSI devices attached to your Mac, you have a personal network. Unfortunately, fewer Macs are tied to an equally important type of network: the personal-information network. I'm referring to the people, magazines, books, and other sources of information that make using your Mac easier.

All networks exist for the same basic reason, be they hardware networks or user-group-style people networks. They exist to allow people to transfer or share information. A computer can't create its own data out of nothing — the material has to come from somewhere. Likewise, the mere fact that you're reading this article shows that you don't use your Mac in a vacuum. You've already networked to or accessed *MacUser*, a good source of Mac information on products as well as productivity. But there are other sources of Mac information you ought to know about.

If you really want to keep up with all the ins and outs of the Mac industry, you also need to read *MacWEEK*. This more-or-less weekly newspaper (42 issues are published a year) is what is called a controlled-circulation journal. That means it's free if you pass its qualifications test. These days, just passing isn't enough. The list is full, and qualified readers have to wait for others to be dropped. All isn't lost if you want to read *MacWEEK* and don't qualify or can't wait for a free subscription, though. Paid subscriptions are $99 per year (a real bargain). To sign up or get more information, call (609) 461-2100.

Books about the Mac abound. Some are good, some are so-so, some are worthless. I'll be looking at books in more detail in a future column, but for now, let me recommend two: *The Little Mac Book*, second edition, by Robin Williams and Kay Nelson (Peachpit Press, $14.95), and *The Macintosh Companion*, by Sharon Zardetto Aker (Addison-Wesley, $22.95). The former is especially useful for beginners, because it packs the most important information into the smallest space. (Be careful when buying *The Little Mac Book*; Que has used the same title for an inferior book.)

Programmers should also be reading *MacTutor* ($40 per year; [717] 777-1255) and should be members of APDA (Apple Programmer's and Developer's Association), run by Apple. It publishes *Tech Notes* and other important technical documentation. APDA membership costs $20 per year. For more information, call (408) 996-1010 or write to APDA at 20525 Mariani Avenue, Cupertino, CA 95014.

Group Therapy

If you live near a large town or a university, there's probably a Macintosh user group (usually abbreviated MUG) near you. MUGs are excellent resources. You'll find special-interest groups, good advice and help, and good companionship there. They're also often the easiest and cheapest places to obtain the latest revisions of Apple's system software, which they generally have before the dealers do.

Apple strongly supports user groups. Apple executives frequently speak at group meetings, and the bigger groups get to see new Apple hardware shortly after its release. Industry luminaries such as Bill Gates also show up, often with first looks at new products. Some *MacUser* editors speak at user groups, and most belong to at least one MUG.

In 1985, Apple started an internal group called the User Group Connection. Its purpose is to share Apple information with the 1,200 or so Macintosh user groups, which it does efficiently. Apple also has a toll-free number you can call to locate the MUG nearest you. Just call (800) 538-9696 and ask for extension 500.

Getting On-Line

The connections just described are local connections. They're not the only kind. A modem attached to or installed inside your Mac lets you connect worldwide. A good modem isn't expensive these days. The minimum modem speed you should get is 2,400 bps; a 2,400-bps modem should cost you about $100. Many of the places I'm going to tell you about in the next few paragraphs support even faster modems, up to 9,600 bps. If you weigh the value of your time against the cost of the hardware, it becomes clear that the faster the modem, the better. The prices of good 9,600-bps modems are now dropping under $500 and soon will be even lower. Under these circumstances, the only people who shouldn't get a modem immediately are those who live a long way from any city. If you do live in the country, the connections noted below usually require a toll call and, given the addictiveness of electronic communication, that can really run up your phone bill.

Electronic connections come in two kinds: electronic bulletin boards (BBSs) and national or international on-line services. BBSs, for the most part, are local — many user groups run one, for instance — and have a limited number of phone lines. They range from small one-person operations to fairly large, extensive operations capable of handling 20 or more users at a time. There are thousands of these BBSs, and they cover virtually every interest.

How do you go about finding a BBS? Ask at a user group. Someone will know of one or more in your area. Or get a copy of *Computer Currents* or *MicroTimes* if you can find one in your area (they publish editions all over the U.S.). These papers are often found in computer stores and bookstores, but remember that they're

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CIRCLE 61 ON READER SERVICE CARD.

supposed to be free — don't pay someone for one. Toward the back of each issue, you'll always find a list of local BBSs. *Computer Shopper*, the mammoth $2.95 magazine for which I write a monthly product-review column, publishes a national BBS list every few months. Check it out on the newsstand to see if the current issue has the list.

The other type of electronic connection is national on-line services, and you have several to pick from. ZiffNet/Mac (also known as Zmac), CompuServe, America Online (AOL), and GEnie are all good places to find lots of Mac users and Mac information. Stay away from Prodigy if you want Mac info. The interface is awful, the information scant, and the speed slower than you'd believe possible.

The national on-line services can accommodate (for all practical purposes) an unlimited number of callers. They have enormous files of Mac software for downloading or transferring to your computer. The hardest thing about using them is that their large size makes finding what you want and exploring them a slow, expensive proposition. National services are not free. Zmac and CompuServe cost $12.80 per hour at 1,200 or 2,400 bps. AOL is a bit cheaper, but it can be slower to use.

A good place to start is Zmac, the on-line service that's part of *MacUser* and *MacWEEK*. Zmac has only three message areas: the MacUser forum, the MacWEEK forum, and the Download & Tech Support forum. I just happen to be the system operator (*sysop* in BBS-speak) of the MacUser forum. I promise those who leave me a message in that forum a quick answer and lots of help. My address is 72511,45.

To access Zmac, all you need is a modem and telecommunications software. Smartcom II ($149), from Hayes Microcomputer Products (Norcross, Georgia); Microphone II ($295), from Software Ventures (Berkeley, California); and White Knight ($139), from The FreeSoft Company (Beaver Falls, Pennsylvania) are the leading commercial packages. Zterm is the best shareware choice. If you plan to stick to Zmac and CompuServe, the commercial utility Navigator, which automates your on-line sessions, can save you lots of money over the long term. CompuServe also publishes CIM (CompuServe Information Manager), a graphical interface for the service, which costs $25 but comes with a $25 connect-time credit. AOL requires proprietary software, which it often gives away free.

Here's how to sign up for Zmac on a terminal emulator: Once you've installed the necessary hardware and software, call (800) 635-6225 on a voice phone to find the access phone number of the nearest connecting point for your modem. Configure your software to 8 bits, 1 stop bit, and no parity (don't worry — you don't need to know what these terms mean — ever). Use your software to dial the access phone number. Once you're connected,

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Powerful Disk and File Recovery Tools for the Macintosh

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CIRCLE 75 ON READER SERVICE CARD.

press the Return key. You'll be asked some questions. Here are the answers (don't forget to press Return after each answer): The Host Name is CIS . The User ID is 177000,5200. The password (for this one time) is Z*MAC. The Agreement Number is Z12D9014. You'll then need to provide personal data and a credit-card number for billing. Once you get into Zmac, go directly to the MacUser Forum (type GO MACUSER) and leave me a message.

Your connections to the rest of the Mac community are as important to achieving greater productivity as the latest and greatest application programs are. The more you know about your Mac, the more you'll be able to get out of it.

On a Different Track

How could I write about connections and not mention a software program called . . . Connections? It's a HyperCard-based PIM (personal-information manager). Connections was written by Danny Goodman (whose articles on HyperTalk programming you may have seen in *MacUser*'s Power Programming section) and is published by Connectix, of San Mateo, California ([415] 358-8600). Its interface and features are quite good, although the program can seem a bit slow and cumbersome. Those flaws are more HyperCard's fault than Danny's. If you have enough RAM and a faster Mac (anything but a Plus, SE, or Classic), it'll be fine. Connections is reminiscent of Focal Point (no surprise — Danny was involved there too), and Focal Point users will appreciate the improvements. It doesn't, unfortunately, read Focal Point files.

Pick of the Month

You may not be hearing as much about viruses as you did a year ago, but they are still around and still a serious problem. Virus detection, prevention, and eradication continue to be necessary. PersonalMac users have always been well served by Jeff Shulman's antivirus products. The recent release of VirusDetective 5.0 and VirusBlockade II 2.0 puts Shulman Software, of Morgantown, West Virginia ([304] 598-2090), back on top of the antivirus heap (a position it has never strayed far from). VirusDetective is the detection software, and it's available as shareware from Zmac (Library 2 of the Download and Tech Support Forum; filename VIRDET.SEA). A demo of VirusBlockade II is available in the same place (filename VBLTD.SEA).

The total price for both programs is $70. VirusDetective is shareware ($40). VirusBlockade II costs an additional $30 for registered VirusDetective owners (it's not shareware and is not available or usable alone). It is a bargain, and every user should register, if only for the exemplary follow-up service. Shulman provides the absolute best service in the business to registered users. As soon as a new virus is detected and broken, Shulman dispatches postcards with the necessary information for updating your software. The updating is simple and doesn't require special software at your end. And Shulman gets the cards out faster than any of the commercial antivirus companies.

The Easter-Egg Hunt Goes On

The first of this month's Easter Eggs is a plaintive cry from within the System 7 (and 7.0.1) System file itself. I heard about this Easter Egg from Rob Brown, of Melbourne, Australia. To see it, first use the Duplicate command to make a copy of your System file. Then use Microsoft Word's Open Any File command (hold down the Shift key while you pull down the File menu to see the command) to open the *copy* of your System file. (If you don't have Word, any good text editor ought to be able to open the file for you.)

Back in January, I promised a second Excel 3.0 Easter Egg. Here it is: Start by using the Formula menu's Goto command, and type the name of the very last cell that's possible in a worksheet: IV16384. Then go to the Format menu and change Row Height to 0 and Column Width to 0. Use the scroll-bar arrows to scroll your worksheet until no cells or labels are visible. Click in the small rectangle that remains. This one is more relevant now that Lotus 1-2-3 for the Mac is available. But is it true? Only time will tell.

Ah, yes. There's only one way out. Close the document as soon as the "tape" stops and the gray cell box reappears. If you wait too long, the tape will start to run again and you'll have to sit through it all over.

If you know of any great Easter Eggs, drop me a line. The easiest way is via Zmac. If you prefer snail-mail, write care of *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

Steven Bobker is a former editor-in-chief of *MacUser* and currently keeps busy acting as Sysop for *MacUser*'s forum on Zmac.



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CIRCLE 183 ON READER SERVICE CARD.

How to Buy Modems



A modem is not only affordable these days, it's virtually indispensable. With a modem, you can use your Mac to access on-line services such as CompuServe, America Online, and *MacUser*'s own ZiffNet/Mac as well as professional services such as Lexis (for lawyers) and small bulletin-board services. You can also use it with software such as AppleTalk Remote Access to access the power of your office Mac (and servers and printers) while on the road or at home. Even better, modems are getting faster and cheaper: What used to be top-of-the-line — a 2,400-bps modem — is now standard, and some 9,600-bps modems have come down in price enough to be a good buy for personal-Mac users. For more on modems, see "Thoroughly Modern Modems," January '91, page 100.

By Victoria von Biel

✔ Modems are rated by how fast they send data over phone lines; their speed is measured in baud or bps (bits per second).

$ Although you can pick up secondhand 300- and 1,200-bps modems for much less than $100, it's worth spending $250 or so to buy a 2,400-bps modem with built-in error correction (which guards against phone-line disturbances and the resulting garbled data) and data compression (which lets your modem transmit at speeds as high as 9,600 bps).

✔ The error-correction standards to look for are MNP Class 4, a standard developed by Microcom that improves data throughput, or V.42, the standard for in-modem error control developed by CCITT, an international standards committee based in Geneva.

✔ The data-compression standard to look for is MNP Class 5 or V.42bis. Your best bet is a modem that has both standards; if that's not possible, go for V.42bis, which advertises compression ratios of up to 4:1. MNP 5 offers up to 2:1 compression.

? When buying a 9,600-bps or faster modem, make sure it's configured for the Mac and has a cable capable of hardware handshaking, which controls the data flow between your Mac and your modem. Hardware handshaking is less likely to result in garbled data than is software flow control (the XON/XOFF option in your telecommunication software's settings file).

$ If it turns out that your cable isn't capable of hardware handshaking, you can make your own jumper cable (see "Modem-Cable Rewiring," January '90, page 213).

? Find out what software is bundled with the modems you're looking at. You'll get the most use out of full-featured telecommunications software such as Smartcom II, MicroPhone II, and White Knight rather than a generic terminal-emulation program.

$ Consider buying a modem that can send faxes. For this extra convenience, you'll add only $25 to $50 to the price of a 2,400-bps modem.

$ If you are looking for a bargain but don't want to sacrifice quality, you can get a low-cost 2,400-bps modem for around $100. To complete the package, buy a serial cable from an electronics store for about $10 and get a public-domain telecom program, such as Red Ryder or ZTerm, from a user group or an on-line service.

? When comparing modems, check out the power cube that plugs in to the electrical socket. Some cubes are so large that they can't fit into a power strip or outlet without blocking other outlets.

✔ Buy a replacement RJ-11 phone cord when you buy your modem. Most modems come with a 7-to-13-foot cord; a 25-foot cord is much more convenient.

$ You don't need to buy an extended warranty with a modem, but do make sure that you get a good money-back guarantee that lasts at least 30 days. A modem doesn't have any moving parts, so if it's going to break down, it will probably do so within the period of the normal warranty. To check your modem's stamina, keep it on continuously during the warranty period.

✔ Resist the temptation to buy a surge suppressor. Unless you live in an area prone to severe lightning storms, you probably don't need one for your modem. If you do, have your telephone company install a protector on the phone line going into your house or business — you'll get much-more-effective protection.





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CIRCLE 47 ON READER SERVICE CARD.

There's no longer any reason to use the clunky Apple File Exchange utility — Dayna's DOS Mounter 3.0 mounts DOS floppies in Apple's external 5.25-inch drive. DOS disks mounted by DOS Mounter have a unique icon, so you don't have to guess what kind of floppy you've mounted. Extension mapping has been updated and includes the wildcard "star" character used in DOS. It's still $89.95 (upgrade, $24.95). (801) 531-0600.

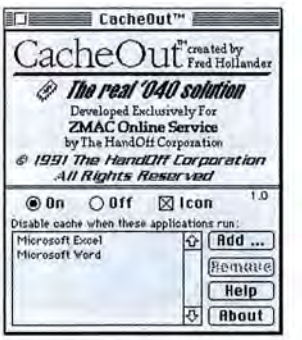
By John Rizzo



Window cleaning: Trying to find the right window among a maze of randomly shaped ones is almost enough to make you go to a command-line interface. Before you do anything drastic, check out Kiwi Software's Power Windows ($79), a window-management tool for System 7 users. Power Windows adds a menu to the Finder and applications that offers dozens of ways to manipulate window sizes and positions on-screen. It also lets you create Work Sets, which open multiple files to preset window positions. (805) 968-1932. ✦ CE Software's Tiles ($99.95) is a macro utility that turns a group of related applications and files (such as the parts of an annual report) into a single desktop icon like the one at the left — a standard Windows feature. To open the project, you just double-click on the icon. Just as long as we don't have to type `COPY C:` . (515) 224-4534.



On-line oracles: On-line special-interest forums, or bulletin boards, are useful for getting answers from experts who might otherwise charge large consulting fees. Delphi is a full-service on-line network that lets you create custom forums on any subject. You can limit access to your company, family, and friends or open it up to anyone. Delphi will waive certain fees as forum use increases and may even pay *you* if the forum gets really popular. Call (617) 491-3393, or sign up by modem at (800) 695-4002, password CUSTOM815. ✦ The 68040 cache in the Quadras causes some programs to crash, but the folks at HandOff have come up with a fix exclusively for ZiffNet/Mac, *MacUser*'s on-line service (part of CompuServe). CacheOut is a free utility that automatically turns off the 68040 cache when you launch an incompatible application — you don't even have to reboot the machine. Look for CacheOut in Library 3 of the Download & Support Forum; the filename is CACHEO.CPT.



Objects of desire: Microsoft brings another PC standard to the Mac with its $49 software-development kit for Object Linking and Embedding (OLE), which supports information sharing among applications. On the Mac, the tool kit is Microsoft's implementation of Apple events. Developers can add OLE capabilities to existing applications through simple extensions. (206) 882-0880. ✦ Object Master ($395), from ACIUS, uses Apple-event-driven "hot links" to automate programming chores within the MPW and THINK environments. It provides intelligent source-code editing that checks for syntax errors on the fly, without making you compile the code first. You can create templates that conform to your programming style, and Object Master maintains a database of data definitions and procedures, mixing files from Pascal, C, Modula, and other languages. (408) 252-0831.

Speed Reader

Ten power-user tips that can help you get the most out of your OCR package.

By Gregory Wasson

With the advent of hand-held scanners and as the prices of flatbed scanners reach new lows, OCR (optical character recognition) is becoming less the exclusive domain of business and more a technology available to anyone who has a computer.

What is OCR software? It scans or "photographs" a page of text via a scanner and then attempts to read or transform that graphic image into an editable word-processing file.

The first time you use OCR, it may seem magical. But OCR is really an art that must be learned through experience. Here are ten power-user tips and techniques that can bring you up to speed.

MacUser **contributing editor Greg Wasson uses OCR to scan in tips for Tip Sheet. Janet Knudsen, of Xerox Imaging Systems, and Vallance Cole, of Caere Corp., contributed to this article.**

Put a Lid on It!

It may be tempting to leave a flatbed scanner's cover up if you're flipping pages on and off the scanner bed, but you'll regret it. Leaving the lid open can adversely affect the accuracy of a scan, because the page is not completely flat against the scanner's glass bed. If you're scanning text from bulky books, you may want to photocopy the desired pages first. Also, remember to keep the glass bed of the scanner clean.

Dropping Out

If you are editing the hard copy before it's scanned, be sure that you mark up the pages with your scanner's dropout color, which is usually nonrepro blue. Nonrepro-blue pencils are available in most office- or art-supply stores. If you use the nearest ballpoint pen, you'll dramatically increase processing time as well as the amount of garbage you have to trash in the word-processing file.

Dot matrix before photocopying:



Dot matrix after photocopying:



Connect the Dots

Many OCR packages feature a setting that improves the accuracy of dot-matrix scans. If your package lacks such a setting, try photocopying the material and scanning the copied pages. Photocopying blurs the text somewhat, effectively connecting the dots of the characters so they can be recognized more accurately. You can sometimes achieve the same effect by setting the brightness control to darken. In the top scan at left, the *C* was recognized as an *L*.

When Less Is More

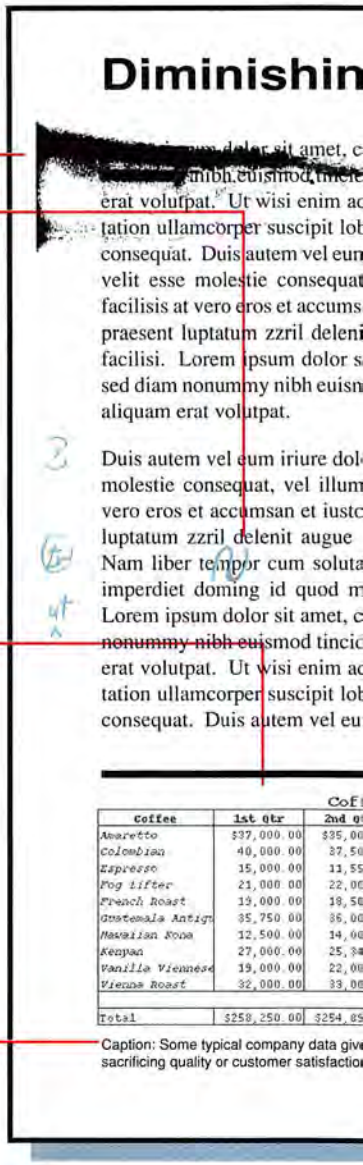
Your OCR software lets you scan at 300, 400, or 600 dpi. Bigger is better, right? Wrong. You generally get more-accurate results if you scan normal or large text at 200 dpi. A higher-resolution scan only takes longer and can introduce recognition errors by drawing attention to smudges and imperfections in the character shapes. The only exception is text that's smaller than 10 points — especially laser output, such as that in the example below. Scan such text at 300 dpi or higher for better results.

7-point text scanned at 200 dpi:

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7-point text scanned at 400 dpi:

Speed Reader--
Ten power user tips that will help you get the most out of your OCR package



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French Roast	19,000.00	18,50
Guatemala Antigu	35,750.00	36,00
Hawaiian Kona	12,500.00	14,00
Kenyan	27,000.00	25,34
Vanilla Viennese	19,000.00	22,00
Vienna Roast	32,000.00	33,00
Total	$258,250.00	$254,05

Caption: Some typical company data give
sacrificing quality or customer satisfactio

Choose Your Scanner Wisely

If OCR is a major regular chore for you, use a flatbed scanner — hand-held scanners just don't cut the mustard. But if you need OCR only occasionally, here are a couple of tips for using hand-held scanners such as Caere's Typist. Make sure you put the document you're scanning onto a smooth, wrinkle-free surface. Also be aware that if you're scanning pages in a book, a hand-held scanner will tend to fall off the edge of the book, which can create garbage in the word-processing file. You can avoid this problem by "extending" the dimensions of the book by placing another book of the same size next to the open page. This extra space helps to keep the scanner from falling off the edge during the scan.

Be Prepared

Prepare your materials before you start scanning. Stack all dot-matrix hard copy together, take out staples, and so on. If your software supports it, create settings files for the various types of documents you usually scan, such as dot-matrix output, pages from a specific printer that scan better when you darken the contrast, and the like. If you expect to do a lot of OCR work, consider buying an ADF (automatic document feeder). If you're not certain, you should buy software and hardware that support an ADF so you can add it later.

Take Only What You Need

If your software allows it, pre-edit the document as you scan — scan only those portions of the page/document that you need in the word-processing file. Don't scan logos, letterhead material, or signatures, for example. The scan will take less time, and there will be less editing to do in your word processor. If your program doesn't have this flexibility, use Post-it notes to mask the unwanted areas of the page.



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Quarter

	4th qtr	Total Sales
0	$36,500.00	$141,750.00
0	39,250.00	157,750.00
0	14,300.00	53,000.00
0	20,860.00	83,360.00
0	18,850.00	76,100.00
0	35,450.00	146,200.00
0	16,000.00	54,950.00
0	26,340.00	100,730.00
0	21,000.00	80,850.00
0	29,950.00	126,910.00
0	$258,500.00	$1,023,000.00

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MacUser magazine

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I Shot the Serif

If your OCR work includes regularly processing typewritten material or computer output, try to ensure that the material is in a sans serif font such as Helvetica. Sans serif fonts generally scan far more successfully than serif fonts such as Times or Palatino do. Serifs can confuse the recognition engine of many OCR packages.

Fax with serif text:

'Me first time you try out OCR, the admaline suri-tes. In goes the paper, out comes a word processing flle you can maniptaate and format to your h@s content. It mms like magic. But thafs the fint time.. .

Fax with sans serif text:

The first time you try out OCR, the adrenaline surges. In noes the paper, out comes a word processing file you can manipulate and format to your hearts content. It seems like magic. But that's the first time...

Bright Lights

One of the most overlooked and underused controls in most OCR software is the brightness control. Unfortunately, it's also the most important part of accurate OCR processing. If you have to deal with overly dark or smudged copy, such as faxed text, lighten the scan by 25 percent. Scanning screened text, such as that shown here, is usually very difficult, but you can sometimes get better results by fiddling with your software's brightness setting. Frequently, however, you can move the brightness control toward the lightest setting (70 to 80 percent) and essentially remove the screen shading. This leaves the text to the mercy of the OCR software. You can also try photocopying a page with screened text at a light setting and then scan the copy.

Just Type It!

Finally, there comes a point where OCR just isn't efficient, despite all the hype. If you've scanned the same page repeatedly and had only marginal success, it's probably best to give up and type the text. It's faster to retype a difficult page than to correct a scrambled scan.

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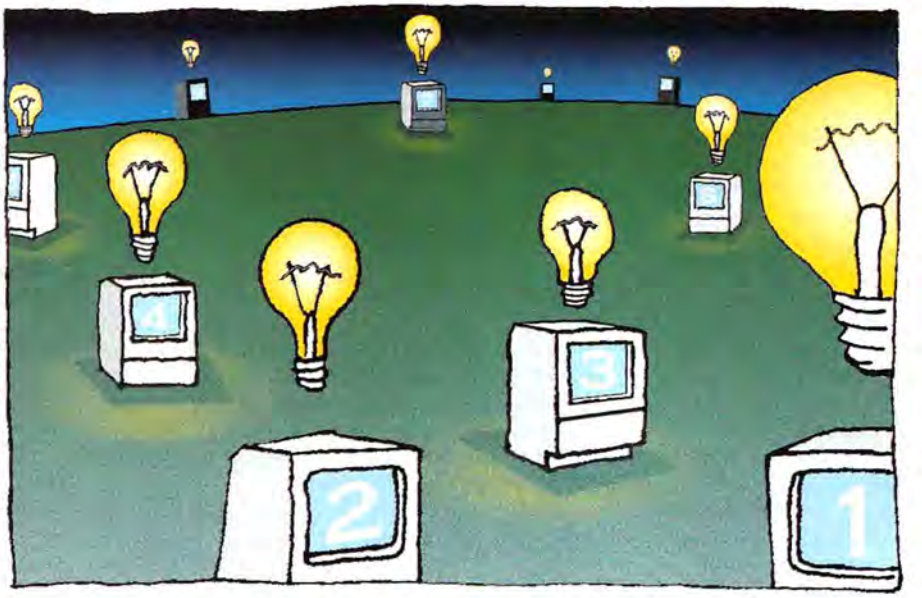
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Top Ten Secrets of System 7

No matter how Seven-savvy you are, something in this Top Ten list of System 7 tips and tricks is sure to make you go "Oooh."

By Bob LeVitus



Even after using System 7 for almost a year, I'm still frequently finding ways to make using it easier and more convenient. Whenever I find one, I scratch my head and go "Oooh," which is my way of saying "That's so obvious. Why didn't I think of it sooner?"

I'm constantly amazed by the System 7 tips that readers around the world uncover and send to *MacUser*. There are so many excellent contributions that we don't have room for all of them in the "System 7 File" section of Beating the System and in Tip Sheet, so I snapped up the best of the recent reader submissions for my own Top Ten list (apologies to David Letterman). Take a moment to try out the tips in this column, and I bet you'll find at least one that makes *you* go "Oooh."

10. Background Copying

Under System 7, you can copy files in the background while continuing to work in an open application. If you're a longtime Mac user, however, you may be so accustomed to being unable to do anything during a copy operation that you forget to launch a program before you start the copying process. As a result, you still can't do anything, because the Finder doesn't let you launch an application while it's copying files.

If you have QuicKeys 2.1, you can perform almost any task that has a QuicKeys macro assigned to it, while your files are copying in the background. For instance, you can launch your favorite word processor or spreadsheet program while you copy files from your hard disk to a floppy in the background.

Roland Mailleux
Brussels, Belgium

Also remember that if you have your application running in the background when you begin copying, you can choose it from the Applications menu or click on any of its windows, which lets you continue working while your files are copying in the background.

9. Smart Apple-Menu Tricks

Many users complain that Apple didn't make it easy to put items other than DAs onto the Apple menu — they don't like having to open the System Folder to add things to the Apple Menu Items folder. I've discovered, however, that you can make an alias of the Apple Menu Items folder and put it inside the Apple Menu Items folder. When you want to add something to the Apple menu, simply select the alias for the Apple Menu Items folder from the Apple menu and drop the item inside, just as you do with control panels.

I have my Sound control panel on my Apple menu, so I can turn the sound down quickly at night. Not all control panels have to be stored in the Control Panels folder, and I have an empty suitcase in the Control Panels folder so it's available when I need one.

Lee Ann Rucker
Bedford, TX

I also have an alias of the Apple Menu Items

folder on my Apple menu, and I keep one on the desktop besides, which seems to be more convenient.

8. Hierarchical Apple Menus

To make this tip work, you need a utility that creates hierarchical menus for your Apple menu. Make an alias of your hard disk, and put it into the Apple Menu Items folder. That's it. Now you have instant, single-point access for every folder and file on your hard disk.

Al Meuli
Apple Valley, MN

I think hierarchical Apple menus are the greatest thing since sliced bread. To get yours, you need NowMenus (part of Now Utilities 3.0), from Now Software ([800] 237-3611 or [503] 274-2800); SuperMenu (part of HAND-Off II), from Connectix ([415] 571-5100); or HAM, from Microseeds Publishing ([813] 882-8635). Once you've got your hierarchical Apple menu up and running, try the following space-before-alias-name trick to organize the contents.

7. Organizing the Apple Menu

The icons on System 7's Apple menu slow down the scrolling process. To avoid scrolling, move your frequently used items to the top of the menu by putting a space before their name. For example, create an _Applications folder on your desktop and put an alias for it into the Apple Menu Items folder (the _ character stands for a space) and then place all your programs in the folder. Because the Applications alias starts with a space, it appears at the top of the Apple menu, giving you easy access to its contents.

Randy Zeitman
Bala, PA

This tip is especially useful. The first 15 items on my Apple menu have one or more spaces before their name. The more often I use a file or folder, the more spaces before its name. The more spaces I put before its name, the higher the item appears on the menu.

If you use Microseeds' HAM, you don't have to bother with the spaces. In addition to its hierarchical Apple menu, HAM has a very Mac-like list (implemented as a control panel) that lets you rearrange items on the Apple menu by clicking and dragging them.

6. Editing Icon Names

When you edit an icon name, pressing the down-arrow key places the cursor at the end of the icon's name. This is helpful if you're trying to delete the word *alias* from all your aliases. After all, the names are already in italic, so the word is redundant — and besides, it takes up valuable space.

Randy Zeitman
Bala, PA

The keyboard command equivalents in System 7 are among of its best features, yet some people don't use them, because they haven't noticed the shortcuts or they haven't practiced using them.

That's right, I said practice. *If you're not already doing it, try using only keyboard command equivalents in the Finder for a few days. Resist the urge to reach for the mouse. The arrow keys select icons*

How to be social.

Think how much more effective your people would be if they could communicate better. That's the idea behind WordPerfect Office™ 3.0 for the Macintosh.

It's actually several programs in one. WordPerfect Office comes with a very versatile E-mail package (WordPerfect Office Mail™), that makes it easy for people on a Macintosh network to keep in touch. The mail screen shows you everything you need to compose and circulate messages to an individual, to a group, or to the entire corporation.

With Mail, not only can you send and receive messages, but you can also attach up to 100 files of any format. Beyond that, you can add sound or voice annotation, broadcast a message to anyone logged onto your network, or send carbon and blind copies.

Ever wish you could take back your words? Mail's unique status tracking capabilities let you know when a message has been delivered or opened. So if a message hasn't been read yet, you can retract and edit it.



in the active window or on the desktop, the Tab key selects icons in alphabetical order, Shift-Tab selects icons in reverse alphabetical order, typing the first few letters of an icon's name selects it, and windows scroll automatically to the selected icon!

Another hot but not very obvious feature: You can expand and contract folders in the outline views (View By Name, Size, Kind, or Date), using Command/left arrow and Command/right arrow.

5. Invisible Desktop and Trash Folders

I installed System 7 on my external hard disk for experimentation, but I left System 6 on my internal hard disk. After booting under System 7 and then returning to System 6, I discovered new folders on both hard disks called Desktop Folder and Trash. These residual files are required by System 7. They store the files and folders located on the desktop and in the Trash. If you delete these files, System 7 will recreate them, but they clutter the desktop.

If you don't want to see these folders under System 6, you can make them invisible by using ResEdit, DiskTop, or another program that lets you edit file and folder attributes. (If you use DiskTop, for example, simply check the Invisible attribute in the folders' Get Info dialog box.) When you're running under System 6, you won't see these folders, and System 7 uses them without any problem when the

The System 7 File: Switching Drives

Some software upgrades sacrifice familiar features for new concepts. Take, for example, the Drive button in the System 6 Save dialog box. The Drive button lets you choose where to save a file by conveniently switching among mounted hard drives, floppy drives, and AppleShare servers. In System 7, however, Apple replaced that button with one that takes you straight to the desktop, where you can view all volumes and folders simultaneously. An improvement? Yes, but some users now must perform two operations, instead of one, to switch drives.

This month's *MacUser* utility solves that problem. DiskSwitch adds an icon to all Open or Save dialog boxes; click on the icon, and you get a pull-down menu that lets you quickly select any floppy drive, hard drive, AppleShare server, or other mounted volume without going through the desktop. DiskSwitch was programmed by Mike Throckmorton, an Ann Arbor, Michigan-based developer and author of the ZMakeAlias utility (December '91, page 234). DiskSwitch is available exclusively through ZiffNet/Mac, *MacUser*'s on-line service. Look for DSKSWT.CPT in Library 3 (Utilities) of the MacUser Forum or Library 3 (INITs) of the Download & Support Forum.

Submit your favorite System 7 tips, either by mail or by modem to Zmac's System 7 Forum (please include your address too). If you submit the month's best tip, you'll not only receive notoriety and fame but you'll also get a spiffy (and rare!) "I Beat the System" T-shirt.

How to get a date.

Of course, open communication is only one of many ways to bring people together. That's why WordPerfect Office 3.0 for the Macintosh also offers an integrated calendar and network scheduler to help you make appointments, coordinate meetings, schedule events and company resources as well as make to-do lists.

Along with WordPerfect Scheduler and Calendar, WordPerfect Office includes other useful desktop utilities such as Notebook, a flat-file database program; File Manager to help you organize your files; and Forms Maker to create custom forms for Mail, Notebook, and Calendar.

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BEATING THE SYSTEM

Invisible attribute is turned on.

One note of caution: If you make System 7's Desktop Folder invisible and then leave files on the desktop, you won't be able to see the files when your Mac's running under System 6. For example, you can't see or double-click on an application that's on the invisible System 7 desktop. You can still see and open invisible files in applications, however, in their Open dialog box.

Joe Garnero
Charles, IL

There is one possible drawback to this technique: Aliases don't work if their original files are in invisible folders.

4. Alternating Between Systems 6 and 7

Would you like to alternate the designation of your startup device between an internal hard drive that's loaded with System 6 and an external hard drive that has System 7? If so, it isn't necessary to keep using the Startup Device control panel and rebooting. I have System 6 on my internal drive, which is the Startup device, and System 7 is installed on an external drive.

When I want to use System 7, I boot the Macintosh while holding down the Delete-Option-Command-Shift keys, which makes the Macintosh bypass the internal drive at startup. When the disk icon with the flashing question mark appears, I release the keys and the external drive kicks in with System 7! A more elegant solution, which is also easier on the fingers, is to obtain a copy of System Switcher 1.1, a shareware utility that lets you designate which system will boot when you restart the Mac.

Joe Garnero
Charles, IL

3. TrueType Symbols for Control Keys

The TrueType version of the Chicago font that ships with System 7 has numerous special symbols. To get the Command-key cloverleaf, type Control-Q. Typing Option-Control-Shift-D gives you a Shift-key symbol. Likewise, Option-Control-Shift-A produces the Option-key symbol. The latter two symbols are not in the bit-mapped Chicago font that came with older Macs and previous system versions.

Because a bit-mapped font has priority over a TrueType font for screen display and output, you should remove any bit-mapped versions of Chicago that are in your System file if you need to use any of the Option and Shift symbols. This allows them to display and print properly. Furthermore, a 12-point bit-mapped version of Chicago is built in to the Mac's ROM, so you won't be able to use the Shift and Option characters at that size.

These symbols may not print properly in some applications. I can't get them to print in PageMaker 4.01, using either the Aldus or Apple drivers, but they do appear on-screen.

Alex Narvey
Winnipeg, Manitoba
Canada

2. Easy Startup Sounds

Do you want your Mac to play the opening phrase of the "Star Trek" theme whenever you boot it? If you're running System 7, this is a cinch — just place the (double-clickable) sound file in the Startup Items folder. Voilà!

John Thoo
Davis, CA

Oooh, why didn't I think of that? By the way, if you decide you don't want to hear the startup sound, hold down the Shift key just before the desktop appears. If you do it too soon, your extensions won't load, but if you time the use of the Shift key just right, it will prevent everything in your Startup Items folder from executing.

And now for the No. 1 Secrets of System 7, from the winner of this month's "I Beat the System" T-shirt. Actually, Dave wanted the T-shirt so badly that he submitted several juicy tidbits. Here are the best two.

1. Protected File Sharing and More Shortcuts

Once you've configured a Mac for file sharing, you can use ResEdit or DiskTop to make the Sharing Setup control panel invisible, which will prevent other users from changing its configuration. (As mentioned in Tip 5, simply turn on the Invisible file attribute.)

In the Open and Save dialog boxes, Command-D takes you directly to the desktop level, Command/right arrow and Command/left arrow cycle through all mounted volumes, and Command/up arrow and Command/down arrow move you up or down one folder.

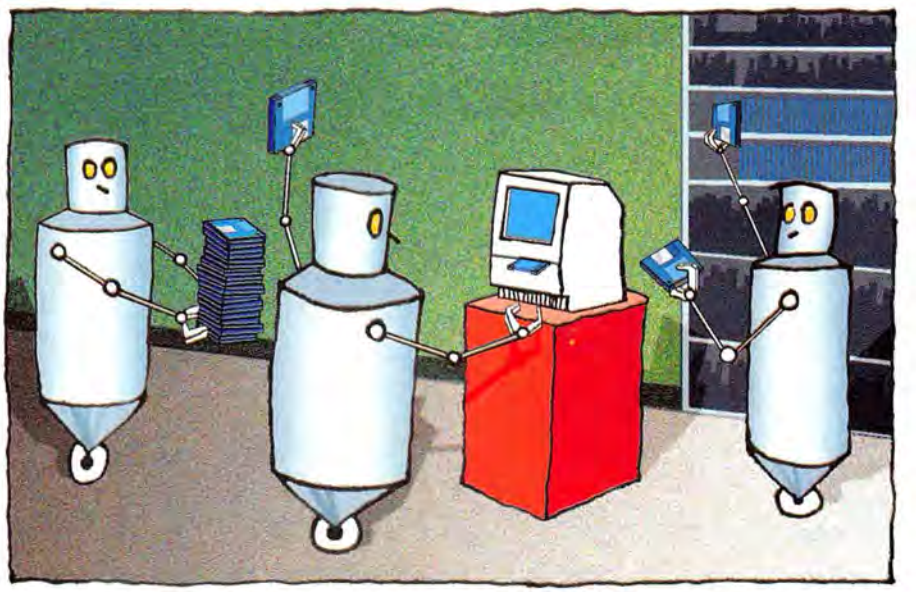
Dave Marra
Lancaster, PA

Bob LeVitus is the author of *Marvelous Macintosh Games* and *Son of Stupid Mac Tricks* as well as the just-released second edition of *Dr. Macintosh*.

Automatic Archives

Backing up your data doesn't have to be a chore. StuffIt Deluxe's scripting language can reduce even a complex backup routine to a single keystroke.

By Michael Miley



StuffIt Deluxe, the commercial compression utility from Aladdin Systems, has long been a favorite tool for compressing files prior to on-line transmission. Power users know that StuffIt is equally adept at archiving seldom-used files and backing up data. Unlike competing utilities that are optimized only for speed or compression, StuffIt has a flexible scripting language that allows you to completely automate archival and backup operations.

StuffIt's Record Script command makes scripting easy. Just walk through the desired steps while StuffIt "watches" you. The program automatically generates a script that can repeat even the most complex series of steps at the touch of a key. (This scripting capability is available only in StuffIt Deluxe; the shareware versions of StuffIt don't support scripting.)

To show you what scripting can do, we'll create two StuffIt scripts for common backup tasks. The first script automates backups of a particular folder and works with StuffIt Deluxe 2.0 or 3.0. The second script uses the Add Match feature, which is new in version 3.0 of StuffIt Deluxe, to back up files modified within a certain time frame, regardless of their location on-disk. After we've created these scripts (both are available on *MacUser*'s on-line service, ZiffNet/Mac — or Zmac), we'll show you how to edit them with any word processor, test their operation, add them to your StuffIt menu bar, and assign keyboard command equivalents for one-touch operation.

The Folder Backup Script

An important requirement of any backup strategy is to organize your files and folders logically to streamline the backup process. One excellent technique is to place each application in its own folder, along with miscellaneous tutorials, utilities, and project folders holding data files.

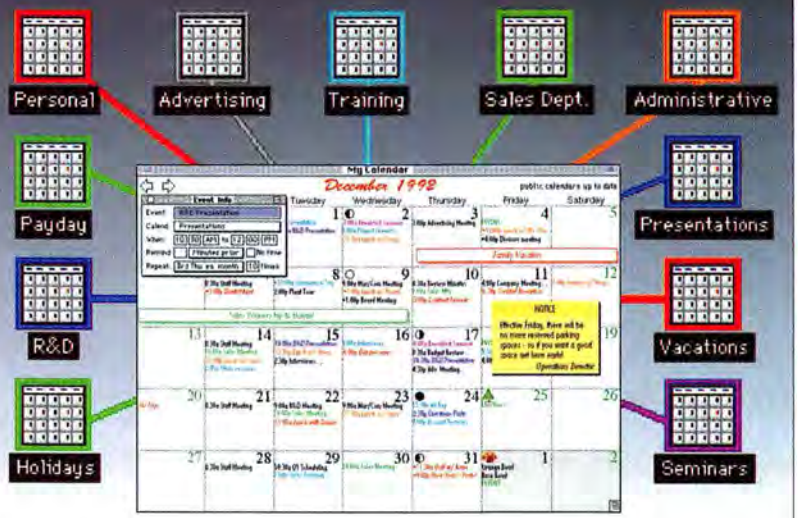
For our first scripting example, create a new folder called Data and place it inside your Photoshop folder. Put a few Photoshop documents inside the Data folder so that StuffIt has something to compress. (Feel free to modify our example by using any application you want, and make the appropriate changes where we optimize our script for Photoshop files.)

Launch StuffIt Deluxe, create a new archive named Graphics.sit, save it in the same folder as the StuffIt application, and close the empty archive. Next, choose Record Script from the Scripts menu, name the script Folder Backup (or whatever you like), and press Return. StuffIt is now in Record mode, indicated by the blinking tape recorder on top of the Apple icon on the menu bar. Open the Graphics.sit archive, and choose Stuff from the Archive menu. Select the Data folder (in the Photoshop folder), and stuff it into the archive as a single item or stuff the contents of the folder as individual items. When StuffIt has finished compressing the Data folder, close the archive and choose Stop Recording from the Scripts menu.

StuffIt automatically generates the Folder Backup script and saves it to disk as a text file

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American Heart Association



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that you can edit with any word processor (see Example 1). At this point, you can choose Add Script to Menu from the Scripts menu and assign a keyboard command equivalent to this new menu item. At a keystroke, the graphics in your Data folder will automatically be compressed and added to the archive again.

Before you add Folder Backup to the Scripts menu, ask yourself a few questions:

•Do you want to add new copies of the Data folder to your archive every time you execute the script, or do you want to replace the earlier copy with a new one? Adding a new folder every time you execute the script creates an "audit trail" of past versions of your files, but it also requires more disk space.

•Do you want to save this archive to a floppy disk rather than to your hard disk?

•Do you want to optimize the compression routine for Photoshop files?

Let's address these issues by modifying our script so that it creates a new archive every time we back up, saves to a floppy instead of the hard disk, and optimizes compression for Photoshop data files. To begin, open the Folder Backup script with a word processor.

The Folder Backup script is a typical script, with each command on its own line, followed by the argument and modifiers in quotes. The first line writes an output file to disk on execution, giving it the same name as the script plus the suffix *.out*. If you insert a name following the **`Write Status To`** command, the output file will have that name instead of the default name. This output file is useful when you're debugging scripts.

The second line opens the archive. The string between quotes is the pathname to the archive, with colons separating folder names. In this case, it's the Graphics.sit archive in the StuffIt folder, which is inside the Utilities folder on the disk called Hard Disk. Here's how to change this line for backup to a floppy disk instead. Format a 3.5-inch disk, and name it Floppy. Now change the current path designation to **`Floppy:Graphics.sit`** so the script uses the floppy instead of the hard disk.

Instead of opening an existing archive, let's create a new one by changing the **`Open`** command to the **`New`** command. Then add the modifier **`replace`** to the end of the line to make the script save disk space by overwriting old versions of the archive with the new data.

Leave the **`Use`** command as is (it specifies which archive to activate in case you

have multiple archives open).

The **Disable Optimizer** command clears all optimizer settings before stuffing, allowing the script to run correctly regardless of individual users' Option-menu settings. Because we want to stuff files by using a compression routine optimized for Photoshop files, insert the line **Enable Optimizer "Photoshop 1"** immediately after the **Disable Optimizer** command line.

We'll leave the last two lines alone. They're responsible for stuffing the Photoshop files with StuffIt's Fast Compression option and then closing the archive.

Finally, add a **Quit** command line at the bottom to exit StuffIt after the script has been executed. Save all these changes to disk, making sure the script is still a text file. Your script should look like the script in Example 2.

Satisfy yourself that the modified script works, by choosing Execute Script from the Scripts menu. It should create a new Graphics.sit archive on the 3.5-inch disk called Floppy and then stuff your Data folder into the archive, using the Photoshop 1 optimizer. Finally, the script should close the archive when it has finished compressing the files and quit StuffIt. If you encounter any problems, check the output file for details. When you're confident that Folder Backup executes correctly, add it to the Scripts menu and assign it a keyboard command equivalent.

The Monthly Backup Script

Now that you've gotten your feet wet on a simple StuffIt script for everyday backups, let's create a slightly more complicated script for backing up files modified within a certain time frame, regardless of their location on-disk.

Launch StuffIt Deluxe, create a new archive named Everything.sit, save it in the same folder as the StuffIt application, and close the empty archive. Next, choose Record Script from the Scripts menu, name the script Monthly Backup, and press Return. Open the Everything.sit archive, and then choose Multiple Stuff from the Archive menu. A dialog box appears in which you can set general options and add files and folders to your archive.

First, choose Optimizers from the Compression pop-up menu. In the dialog box that appears, place check marks next to the Sound 1, Photoshop 1, and MacPaint 1 optimizers. These optimizers save as much space as possible when compressing these types of files.

Example 1: Folder Backup Script

```
Write Status To
Open Archive "Hard Disk:Utilities:StuffIt:Graphics.sit"
Use "Graphics.sit"
Disable Optimizer
Stuff "Hard Disk:Applications:Photoshop:Data:" fast
Close "Graphics.sit"
```

Example 2: Modified Folder Backup Script

```
Write Status To "Output"
New Archive "Floppy:Graphics.sit" replace
Use "Graphics.sit"
Disable Optimizer
Enable Optimizer "Photoshop 1"
Stuff "Hard Disk:Applications:Photoshop:Data:" fast
Close "Graphics.sit"
Quit
```

Example 3: Monthly Backup Script

```
Write Status To
Open Archive "Hard Disk:Utilties:StuffIt:Everything.sit"
Use "Everything.sit"
Disable Optimizer
Enable Optimizer "Sound 1"
Enable Optimizer "Photoshop 1"
Enable Optimizer "MacPaint 1"
Clear Match
Match Modified 1/1/92 to 2/1/92
Stuff "Hard Disk:" fast
Close "Everything.sit"
```

Now click on the Desktop button to display the names of the volumes mounted on the Finder's desktop. Select the disk you want, and then click on Add Match to see a dialog box in which you can specify criteria that must be met before files are added to the archive.

For the purposes of this example, specify only the files that have been modified during January, by checking the Modified check box, entering 1/1/92 and 2/1/92 in the date-range text fields, and clicking on the Add button.

Back at the main Add Match dialog box, the name of your hard disk appears in the right-hand scroll box. The icon beside the volume name indicates that Add Match criteria are in effect. Click on the Stuff List button. StuffIt scans your disk for all files of any kind that have been modified between the specified dates and adds them to the Everything.sit archive. When StuffIt has finished, close the archive and choose Stop Recording from the Scripts menu. The resulting Monthly Backup script should resemble Example 3.

The **Clear Match** command is similar to the **Disable Optimizer** command, in that it ensures that the script uses only the criteria specified by the ensuing **Match Modified** command.

At this point, you can add the script to StuffIt's Scripts menu or further modify the script to meet your individual needs. For instance, changing the **Match Modified** line to cover 1/1/92 to 1/1/93 includes all the files modified in 1992. Or record a new script by using the other Add Match options to restrict the backup to certain types of files. And if you're saving big archives to floppy disks, we recommend building a script that uses StuffIt's Segment command, which splits large archives across disks.

Give these scripts a try. Both are available from Zmac — look for the filename STFSCR.CPT in Library 5 (Scripts & Templates) of the Download & Support Forum. With StuffIt's Record Script command and version 3.0's Add Match feature, creating scripts tailored to your daily routines is as easy as saying "watch my scripts."

Michael Miley is a free-lance writer who lives in San Francisco.

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Compiled by Gregory Wasson

QuarkXPress 3.0

Are you tired of pulling down a long menu to choose a font in QuarkXPress? Just go to the Measurement palette at the bottom of your screen (use the View menu to make it visible, if necessary), double-click on the current font name to highlight it, and type in the first few letters of the desired typeface. For example, type *He*, and the name changes to the closest match, probably Helvetica. If that's what you want, press Return to select it.

Michael Gondek
Chicago, IL

PageMaker 4.01

If you use various elements such as company logos, slogans, or advertising copy interchangeably in your documents and you need those elements placed at specific locations on the page, you've probably had to create one or more PageMaker templates for the purpose.

An easier way is to use the Scrapbook and PageMaker's "power pasting" feature. First, accurately position the text or graphic elements you plan to reuse in PageMaker documents, and then copy or cut them and paste them into the Scrapbook. Repeat this procedure until all these elements are placed in the Scrapbook. Whenever you need to reuse any of them, simply open the Scrapbook, select the item, copy it, return to your PageMaker document, and power-paste it by pressing Command-Option-V. Your text or graphic element will be pasted into its original position.

Fernando P. Garrido
El Sobrante, CA

Page Layout

You can usually get a more professional effect when you're using two type sizes in heads or when you're using a drop cap set within body text if you use a font that's one weight lighter for the larger type than the weight that's used for the main body text.

For example, if the main body text is set in Helvetica 8 point, use Helvetica Light for the 20-point drop cap (see Figure 1). Otherwise, the large character overwhelms the surrounding text.

Gordon Pritchard
Vancouver, BC
Canada

Usually you can get a more even "color" with a drop cap set within body text by using a typestyle one weight lighter than the body text (this is Helvetica for both the drop cap and the body).

Usually you can get a more even "color" with a drop cap set within body text by using a typestyle one weight lighter than the body text (this is Helvetica Light for the drop cap and Helvetica for the body).

Figure 1: Drop caps can sometimes make the "color" of a page too uneven. By making the capital letters lighten up, you can avoid this pitfall.

Tip of the Month

Claris' Resolve

If you type a formula into a Resolve text field and then lock the text field, the formula will display the result of its calculation. You can place the result of such a formula next to regular text, and it's easy to apply the same style to both of them. If you want to apply a different style to the result, though, you'll have a problem if the formula changes and then contains more characters than it did when you originally set up the text field. For instance, if a formula result was originally 145.55 and changed to 321345.55, the 321 wouldn't appear in the correct style but the 345.55 would (see Figure A).

The solution is to be sure that you select the space *before* the parenthesis that sets off the formula as well as the parentheses and the formula itself before you apply a style to the formula. This ensures that the entire formula will always appear in the correct style.

John W. Baxter
Port Ludlow, WA

The average net cost per unit this month was: **145.55**

The average net cost per unit this month was: 321**345.55**

Figure A: Claris' Resolve spreadsheet program lets you format formula results in text fields, but the formatting won't stick if the formula result changes. There's an easy solution.

Word 4.0

Word 4.0 has a great table feature but only limited border options for each cell. All it takes is a little PostScript programming, however, to make a cell border of any width. Place the cursor in the cell that you want the border around, and type the following two lines:

```
.cell. .75 setlinewidth
wp$box stroke
```

and press Return. Then highlight only these lines (not the actual contents of the cell to be printed), and format with the PostScript style by pressing the Shift key and choosing All Styles from the Format menu. Select PostScript in the scrolling list that appears, and click on Apply.

The number .75 can be replaced with any number you choose. Make sure you've deselected Print Hidden Text in the Print dialog box before you print. Note that Print Preview doesn't accurately reflect your actual hard-copy output. Also, this tip works only if you are printing to a PostScript printer.

Alison Moore-Smith
Boca Raton, FL

Folders (System 7)

You can use folders under System 7 to post handy messages to yourself on the desktop (see Figure 2).

First, select a small block of blank or white pixels from a new document in a painting or image-editing program or select a nonfilled, nonstroked object in any drawing or page-layout program. Copy this selection to the Clipboard (in Illustrator hold down the Option key when you copy). Go to the Finder, create a new folder (Command-N), and choose Get Info from the File menu with the folder selected. Now click on the folder icon in the Get Info window, and paste in your selection from the Clipboard. The folder you've created has no icon, but you can type as many as 31 characters in the folder name to serve as your message.

You can post the message anywhere on-screen, and because there is no icon, you can put it at the very top of your desktop. The message stands out, because it's unusual for text to be on the desktop without an icon.

To make the message even more obvious, precede it with some bullets (Option-8). You can also copy and paste this non-icon from one Get Info window to another to remove icons from folders, files, or applications to save space in a window. You can open an iconless file, application, or folder by simply double-clicking on the text.

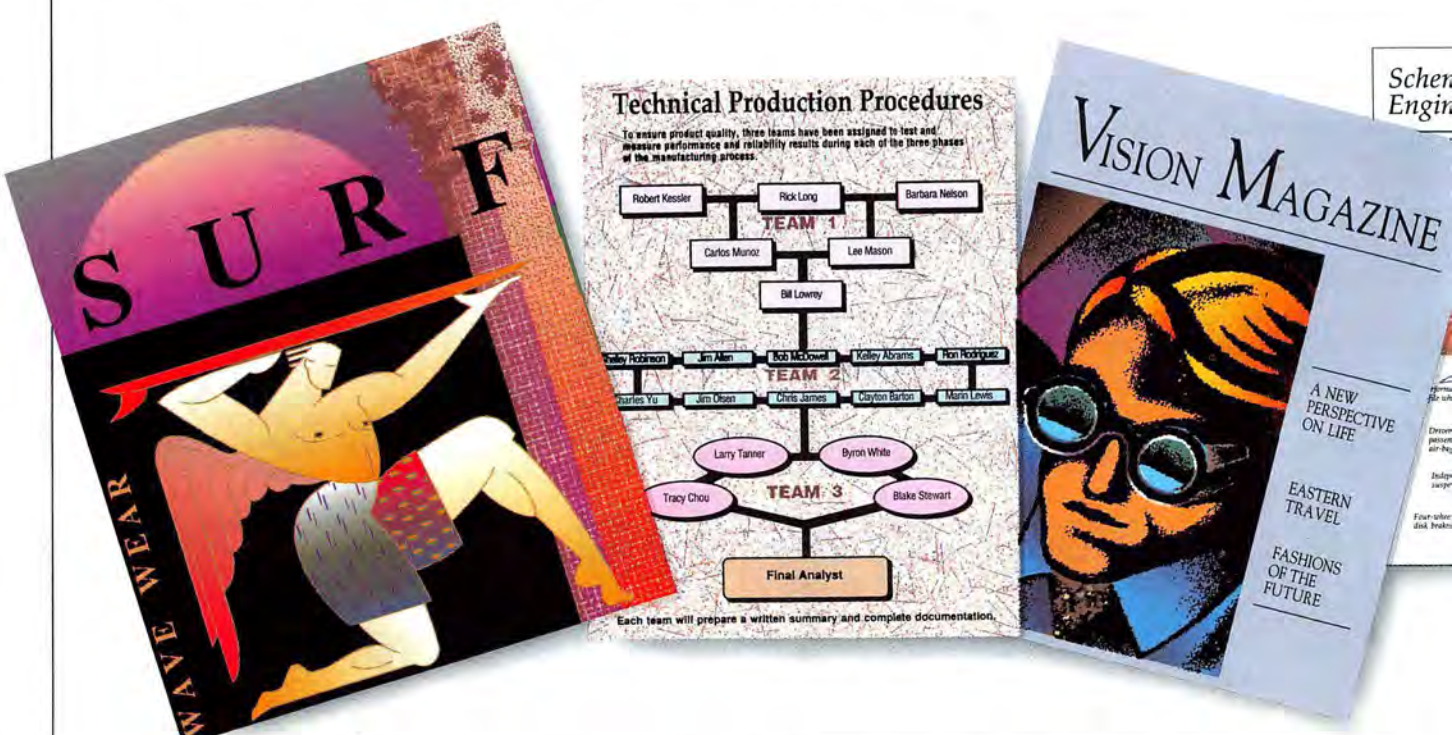
Dave Newberg
Minnetonka, MN

Desktop File (System 7)

Experienced Mac users know that occasionally rebuilding the desktop can help keep the Finder running smoothly and quickly. Rebuilding the desktop usually involves holding down the Option and Command keys when the Mac starts up or after you've chosen Restart from the Special menu. But System 7 lets you rebuild the desktop without restarting your Mac.

While you're in the Finder, hold down the Command and Option keys and press the Esc key. This brings up a dialog

It's a graphics program. It's a business program. Is not.



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box that asks if you want to force the Finder to quit. Click on Force Quit, and then hold down the Command and Option keys. The Finder restarts and asks you if you wish to rebuild each disk that is currently mounted — much more convenient than the old way!

Dale Southard, Jr.
Toledo, OH

Photoshop 2.0

If you make custom icons and want to have Apple's official icon colors handy for reference within a program such as Photoshop (see Figure 3), here's how:

Launch ResEdit, and open a file that has a color icon.

Next, open a color-icon resource (for example, the icl8 resource). The icon appears in ResEdit's color-icon editor. Tear off the Icon Color palette (the top rectangle near the bottom left side of the editor), and do a screen capture (Command-Shift-3). Crop the resulting PICT file in a graphics program, and save it.

Now whenever you need to pick icon colors, you'll have the official palette to choose from.

Christopher Baler
Pensacola, FL

FileMaker Pro

After importing a PageMaker EPS file I had printed to disk into a letterhead layout in FileMaker Pro, I was puzzled when I tried to print the letterhead and got a bit-mapped screen image instead of the PostScript output I expected. I tried replacing the EPSF/PFLT translator and the Claris XTND system files, thinking that the problem had occurred in

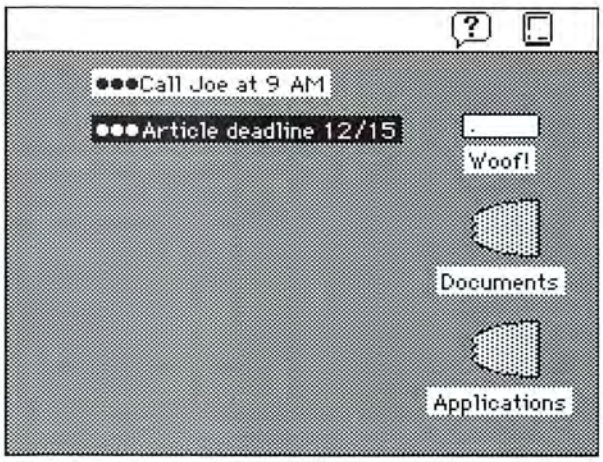


Figure 2: You can use the System 7 desktop and folders to create a simple message board.

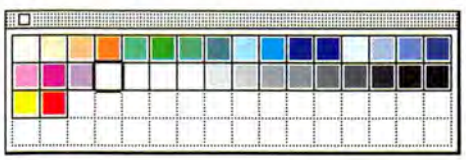
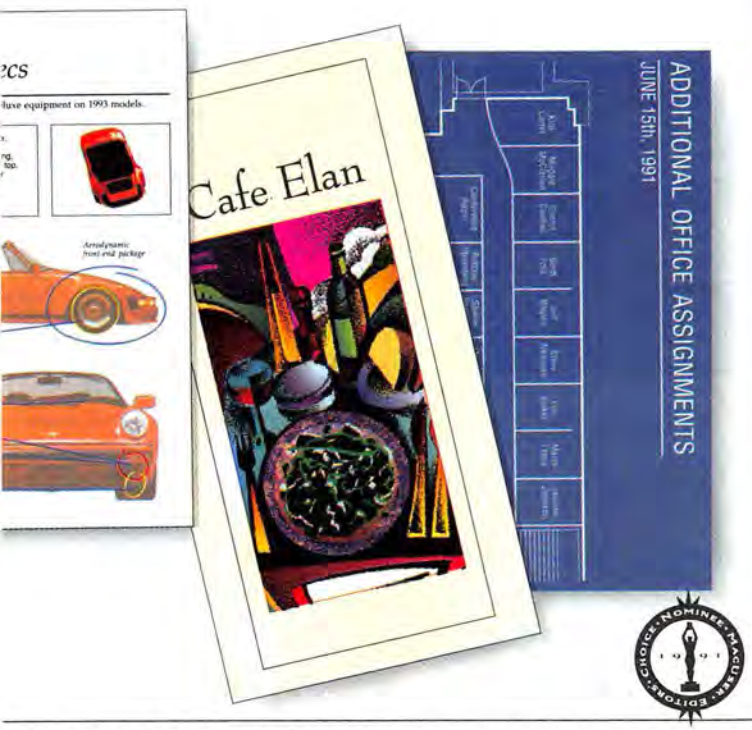


Figure 3: The Apple Icon Color palette.

Is so. Is not. Is so.



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Tips from the Experts

Resolve

The folks at Claris recently sent us their favorite tips and techniques for their new spreadsheet program. Here's the cream of the crop:

By the Script. One of Resolve's niftiest features is its user-friendly scripting language, Resolve Script. One attractive aspect of this language is that you don't have to be in a special script or macro window to enter Resolve Script commands. Simply access the entry bar (Command-Option-arrow key from any empty cell), and type a valid Resolve Script command. Press Command-Enter or Return, and the script command will be carried out. To hide the worksheet cell grid, for example, type `Hide Cell Grid` and press Command-Enter.

Title Lock Up. Holding down the Command key lets you select noncontiguous areas. A good use for this is to select column A and then, with the Command key held down, select row 1. Choose Lock Title Position from the View menu, and as you scroll through large documents, you preserve titles across the top and down the side of the spreadsheet.

Buttoning Up. There's a lot of power in Resolve Script, but if scripting isn't your cup of tea, here's an easy way to take advantage of Resolve's "native tongue." Draw a new button with the Button tool. Select Button Script from the Script menu. Bring your worksheet window to the front, and select Learn from the Script menu. Now you can go ahead and perform the action(s) you want the button to do later. When you've finished, turn off Learn. Then activate the Button Script window (which is automatically created when you choose Button Script) and close it, saving the changes. You don't need to know a word of Resolve Script to do this, but you can quickly create power buttons to make your work more efficient.

the translation of the file during import — but no change.

The PostScript information wasn't getting into the layout but the screen image was, resulting in the bit-mapped output to my printer. But why? The answer lay in memory allocation. If you have the same problem, highlight FileMaker Pro, select Get Info, and increase the memory allocation. Keep increasing the allocation in 512K increments until it's large enough to import the entire file — both screen image and PostScript description.

Pete Hustvedt
Brunswick, ME

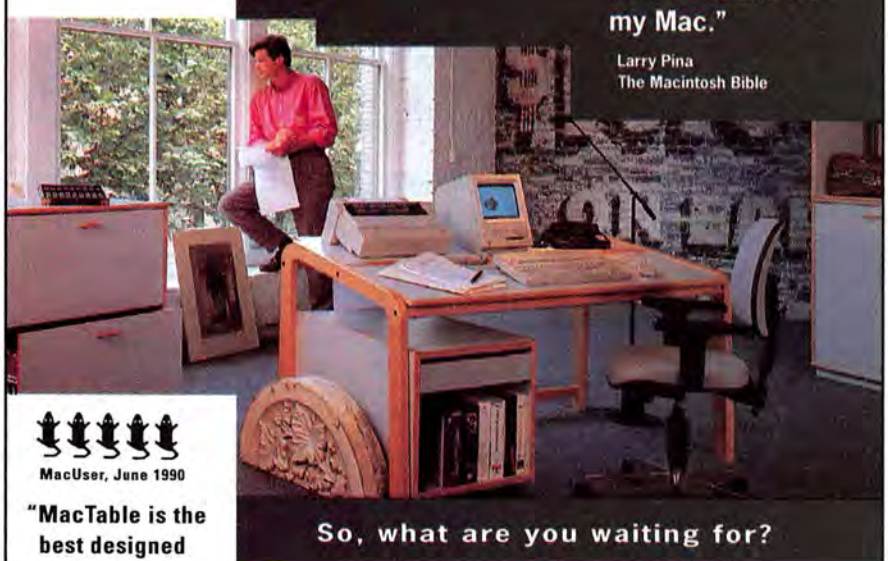
Claris Products

Here's a time-saving tip for most Claris products:

Hold down the Command key while launching the software, and instead of a new, empty document, you will get an Open dialog box that allows you to select an existing document.

Mark Jaffe
San Jose, CA

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Questions, anyone? Here's where to get answers from the experts. Bob LeVitus is the author of the best-selling Dr. Macintosh. *Andy Ihnatko is a longtime activist with BCS•Mac. Together, they're ready to answer your questions about everything Macintosh.*

✉ *Write to* MacUser, *950 Tower Lane, 18th Floor, Foster City, CA 94404.*

Don't want to wait for an answer? Post your question on ZiffNet/Mac, MacUser's *on-line service, and you'll get a reply from Bob, Andy, or one of the other* MacUser *experts. See the masthead in this issue for instructions on how to sign up.*

By Bob LeVitus and Andy Ihnatko

Sharp-eyed reader Liz Clayton noticed that when we answered a question about how to use Apple's print spooler (November '91, page 240), we didn't say anything about a certain dot-matrix printer that a lot of people out there still use: "What if he has an ImageWriter? Apple's print spooler works *only* for laser printers! Background printing with Print Monitor is, for some reason, unsupported for us lowly ImageWriter people."

She's right. The only thing we might add is that under System 7, the spooler also works with Apple's StyleWriter inkjet printer, which is the logical successor to the ImageWriter.

A Bug in Excel

Q. I recently replaced Excel 2.2 with Excel 3.0, which works fine except for one problem. When I create charts for our weekly newsletter, I generally add a few finishing touches in MacDraw II. I perform the transfer under MultiFinder through copy-and-paste. This always worked fine with Excel 2.2. With version 3.0, though, I lose the text formatting and placement when the charts arrive in MacDraw. Worse, I've discovered that the vertical bar charts don't arrive at all! For example, when it's pasted into MacDraw, a combination line/bar chart becomes a line chart only and the text formatting and positioning are lost.

Larry Kornhauser
Paris, France

Bob: Congratulations, you've found a bug (see Figure 1). Apparently, several little buglets crept into the 3.0 release of Excel, and Microsoft recently issued a maintenance upgrade, version 3.0a. The update not only fixes your problem but also makes Excel compatible with the Quadras and corrects incompatibilities with version 1.3 of Apple's DAL (Data Access Language). Registered users can get the update free from Microsoft Corp., One Microsoft Way, Redmond, WA 98052; (800) 426-9400 or (206) 882-8080.

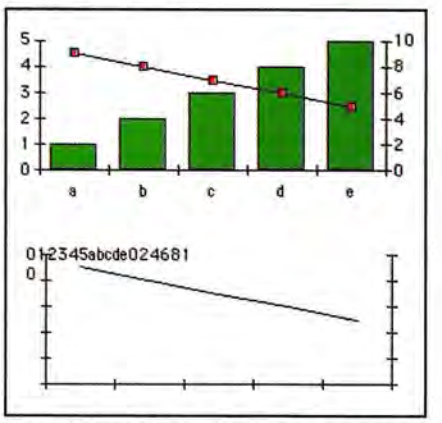


Figure 1: A combination bar/line chart as seen in Excel 3.0 (top) and what it looks like when pasted into MacDraw (bottom) — most definitely a bug at work.

✻ . . . But Were Afraid to Ask

All over the country, folks are seeking the simpler things in life. Rich executives are quitting their high-powered jobs, giving up their cars and fancy houses, and taking up more-basic lives in the country — much like Eddie Albert and Eva Gabor in Chekhov's classic play *Green Acres.*

Have they gotten back in touch with something the rest of us have long forgotten? Of course not. They're just nuts. But we here at Help Folder enjoy simple questions enough to devote space to one monthly. And to protect you from being splattered with red paint by some acorn-drunk ecoterrorist, we'll say that your letter was written by a recurring character on "Saturday Night Live" whom I'd really like to see killed off.

Q. An external hard-disk drive is just a hard disk in a case with a power supply and a bit of hardware, right? Does this mean I can upgrade my external hard drive by buying a new internal disk to replace the one that's in there?

That "Makin' Copies" guy
In a violent propane explosion

Andy: All the important stuff (the platters, the motors, the SCSI interface) is contained in one little package — the hard-disk mechanism. The rest of the drive is just a power supply and a fancy case. All the above snaps together with the sort of connectors you'd see if Fisher-Price made a "Lil' Electrical Engineer Busy Box."

So to upgrade your pathetic little 20-megabyte hard drive, just crack open the case, yank out the old SCSI mechanism, and replace it with one of higher capacity. No wiring or soldering is required; usually it's just a matter of taking out the four screws that keep the mechanism in place and then unplugging three cables (a SCSI ribbon cable, a four-connector power hookup, and a flat connector that runs to the SCSI-ID-selector switch on the enclosure). Depending on the make of your drive, you're likely to find two more wires that connect to the "drive in use" LED on the case.

As long as you buy a SCSI-type mechanism as a replacement (as opposed to RLL, MFM, or other kinds more often used in PC land), practically nothing can go wrong. If the mechanism's manufacturer is different from that of the original (you replace a Seagate with a Quantum, say), the formatting software that shipped with your drive may not work. You'll need a commercial formatter such as Drive7 or Silverlining.

Here's another idea: Watch the want ads for someone selling a dead SCSI hard drive. Usually only the mechanism is broken. If your multitester says the power supply's fine, drop a new drive mechanism in there and you can get a 200-megabyte hard drive for less than $500.

Jasmine Drives and System 7?

Q. I recently purchased a Mac IIsi. I have a Jasmine DirectDrive 80 I want to use for backup, but I understand that an upgrade of the drive-formatting software is necessary for compatibility with System 7. I've repeatedly tried to call Jasmine, but some numbers are busy day and night and the voice mail won't take messages. I also sent a fax but have never received a reply.

Robert Kisko
Cherry Hill, NJ

Bob: Unfortunately, Jasmine declared Chapter 7 bankruptcy in October 1991, so it's extremely unlikely that it'll ever provide an upgrade.

Fortunately, System 7-compatible formatting software for Jasmine drives is available from at least two companies. Hard Disk Toolkit (FWB, Inc., 2040 Polk Street, Suite 215, San Francisco, CA 94109; [415] 474-8055) and Drive7 (Casa Blanca Works, Inc., 148 Bon Air Center, Greenbrae, CA 94904; [415] 461-2227) can both do the trick. Just format your Jasmine drive with either one, and you should have no further trouble installing System 7.

Hard Disk Toolkit is a full-featured package that features extensive disk diagnostics, fast hand-tuned SCSI drivers, and above-average documentation. It's easy enough for a novice to use but powerful enough for the most power-hungry power user.

Drive7 has fewer frills but may be right for you. It can format and partition a wide variety of drives, it's extremely easy to use, and it's much less expensive than Hard Disk Toolkit.

One last thing: If you're a Jasmine orphan (or even if you're not), keep this name and number handy — DriveSavers (30-D Pamaron Way, Novato, CA 94949; [415] 883-4232). DriveSavers, run by former Jasmine executive Scott Gaidano, can recover data from and repair all Jasmine models. The company provides a copy of Drive7 at no charge with any Jasmine data recovery. Even for those who don't have a Jasmine drive, it's also adept at recovering data from and repairing most hard-disk drive makes and models as well as SyQuest and magneto-optical cartridges.

Andy: You may want to give Seagull Software a call at (415) 361-0928. Now that Jasmine is once again no more than a crater in an industrial park somewhere, Seagull's the only source for Jasmine Driveware 2.0, which has been buffed for System 7 and can format that puppy, toot sweet. It costs less than 30 bucks, but let me log in here to say that 100 bucks or so for some ninja-level formatting software such as Drive7, Silverlining, or Hard Disk Toolkit is one of the finest investments you can possibly make, no matter which hard drive you own.

Aliases for Invisible Files?

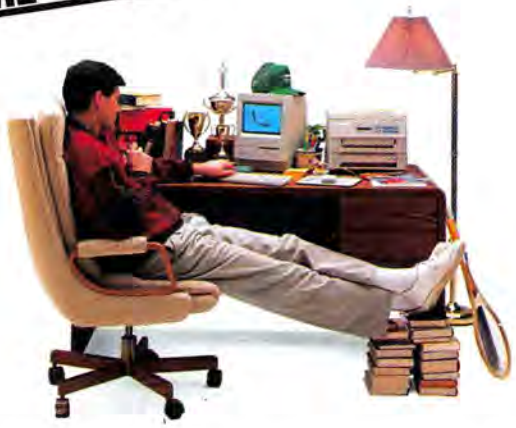
Q. Is it OK to send a letter to Help Folder via America Online? If not, is there some other access via Internet? If it's OK to send a question this way, then here goes:

Does an alias recognize a file that's invisible? I have a

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program (OK, a game) on a hard disk at work that is shared by many people. I made an alias to it that I put on a floppy, and then I set the invisible attribute on the program with a file editor. I find that if I try to use the alias on the floppy right away, I have no problem, but if I close the window for the hard disk and then reopen it, the alias no longer works. Any ideas?

M. Turik
via America Online

Bob: Although I prefer to receive electronic mail via CompuServe (76004,2076), because I log on there several times a day, I do check my E-mail on other services several times a week. I can be reached at LeVitus (America Online and AppleLink), R.LeVitus (GEnie), and 306-0735 (MCI Mail).

The answer to your alias question is, no. No matter what I did, I couldn't find a way to make an alias recognize a file that had been turned "invisible." Believe me, I tried! Sorry.

Andy: Geez, I solved Rubik's Rings in less time than I spent on this one. Several times I was sure I had the answer, but ultimately my quest ended in utter failure. If there's a way to do it, I'd like to know!

Internet access is no problem, though. To send a CompuServe member mail via the Internet, address it to userid@compuserve.com. So, to send a message to Bob (76004,2076), you should use 76004.2076@compuserve.com. As Internet mail can't deal with commas, you have to change the comma to a period. Conversely, if you want to send mail to an Internet address from CompuServe, all you have to do is send it to >INTERNET:user@wherever.

My own CI$ address is 72511,204, but why not send me Internet mail directly? I'm andyi@world.std.com. I mean, I know you didn't ask about sending *me* mail, you like Bob better — everyone does — but would it kill you to just say "hello" once in a while?

Yen Again

Q. Andy's response to "Yen for Chicago" (December '91, page 255) was that editing the Chicago font didn't do any good because the Chicago font is in ROM. However, you *can* bypass any ROM resource and substitute a System-file resource by using the appropriate ROv# resource entry. I won't go into the details, but it is not difficult for experienced ResEdit hackers to do.

Kevin Garrett
Woodland Hills, CA

Andy: You're absolutely right. For the non-Kevin Garrett segment of our readership: Apple burned a lot of cool software into ROM, but being clever boys and girls, it recognized that ROM stands for read-only memory. Therefore, if thousands of Macintoshes rolled off the assembly lines with "Windows 3.0 Truly Bites" burned into ROM instead of "Welcome to Macintosh," the only way to avoid a nasty lawsuit would be to recall all the buggers and replace all the ROMs.

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- ☐ a) Mac Plus
- ☐ b) Mac SE
- ☐ c) Mac II
- ☐ d) IBM PC
- ☐ e) Other

2. For how many micro computers do you buy products? (Check one.)

- ☐ f) 1–4
- ☐ g) 5–49
- ☐ h) 50+

3. Your primary job function is: (Check one.)

- ☐ i) Administrative/General Management
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- ☐ k) Engineering/R&D
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4. For which of the following products are you involved in selecting brands/ models to be bought by your company or organization? (Check all that apply.)

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- ☐ o) Accounting
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- ☐ q) Project Managers
- ☐ r) Word Processors
- ☐ s) Database Managers
- ☐ t) Graphics
- ☐ u) CAD/CAM
- ☐ v) Communications

HARDWARE
- ☐ w) Mainframe
- ☐ x) Mini
- ☐ y) PC
- ☐ z) Printers/Plotters
- ☐ 1) Monitors
- ☐ 2) Disk/Tape Back-up
- ☐ 3) Add-in Boards
- ☐ 4) Communications

5. Are you involved in the purchasing of microcomputer equipment at your company?

- ☐ 5) Yes
- ☐ 6) No

6. If so, what function do you serve in the buying process? (Check all that apply)

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☐ 1) Monitors
☐ 2) Disk/Tape Back-up
☐ 3) Add-in Boards
☐ 4) Communications

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☐ 5) Yes ☐ 6) No

6. If so, what function do you serve in the buying process? (Check all that apply)
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YYYY instead, found in the System file on my hard disk." The ROv# resource is nothing more than a bunch of lists, one list for every ROM revision you're likely to come across, detailing which ROM resources are to be overridden.

Any ROM resource can be overridden in this way, from the standard I-beam editing cursor (CURS 1) to the entire package that handles floating-point math (PACK 4). For a list of all these ROM resources, see Alley and Strange's *ResEdit Complete*, published by Addison-Wesley, or down a couple of stiff drinks and look it all up in *Inside Macintosh*.

Referring to the original question, though, all the guy wanted to do was replace an unused character with the yen symbol. On the whole, it'd be safer and simpler just to download a font such as Chicago Symbols that has all the Chicago characters plus other typographical esoterica.

PLP and Long SCSI Cables

Q. I'm having a problem with my GCC Personal Laser Printer. I can't watch TV and use the printer at the same time, because the printer's SCSI cable is so short that I have to put the PLP right next to the Mac, where my portable TV used to be! A friend suggested that I just lengthen the cable by using a gender changer and another 6-foot SCSI cable. This arrangement allowed me to put the printer on another table, but unfortunately things didn't work at all. Is there a problem with my printer, is my cable messed up, or should I just buy a smaller TV?

Michael Sloane
Ambridge, PA

Andy: Sounds to me like your friend's the only one messed up here I only hope he hasn't been giving you Real Good Advice about fixing the brakes on your car!

Your problem is because of the limitations of SCSI communications. See, SCSI is a sprinter, not a marathoner. It pushes data along faster than grain through a goose, but the SCSI signals can't carry much farther than 6 feet. I've seen electronics catalogs selling SCSI cables as long as 12 feet, but I'm guessing that they also sell unfiltered cigarettes to minors. According to the *technical* specifications for SCSI, you're supposed to be able to throw SCSI signals as far as about 20 feet, but in practice, things start to go wonky if you use cables any longer than 6.

But fret not. Your problem has three possible solutions, which I'll present in no particular order. First, if the printer is located to the left of your Mac, disconnect that second cable and move your PLP 6 feet to the right. Second, if the printer is located to the right of your Mac, disconnect the second cable and move the PLP 6 feet to the left. Third, call up Applied Concepts and order one of its $350 SCSI Plus Bus Repeaters. This little box does nothing more than take an incoming SCSI signal and throw it as far as 15 feet away, safely and reliably. So, you can connect your old 6-footer to the repeater and then run a 12-foot cable from there to your printer. You can even use multiple repeaters to throw the signal even farther, but please don't ask me why you'd want a non-networked printer 60 feet away from your desk, for I shall begin to cry if you do.

Applied Concepts can be contacted at 5350 Eastgate Mall (next to an Orange Julius maybe?), San Diego, CA 92121; (619) 453-6715. Or, if you'd rather stick with the smaller-TV solution, you should know that the trendier video magazines are advertising headbands that can hover a 3-inch color LCD TV right over your eye . . . the ultimate solution for word-processing Bullwinkle fans.

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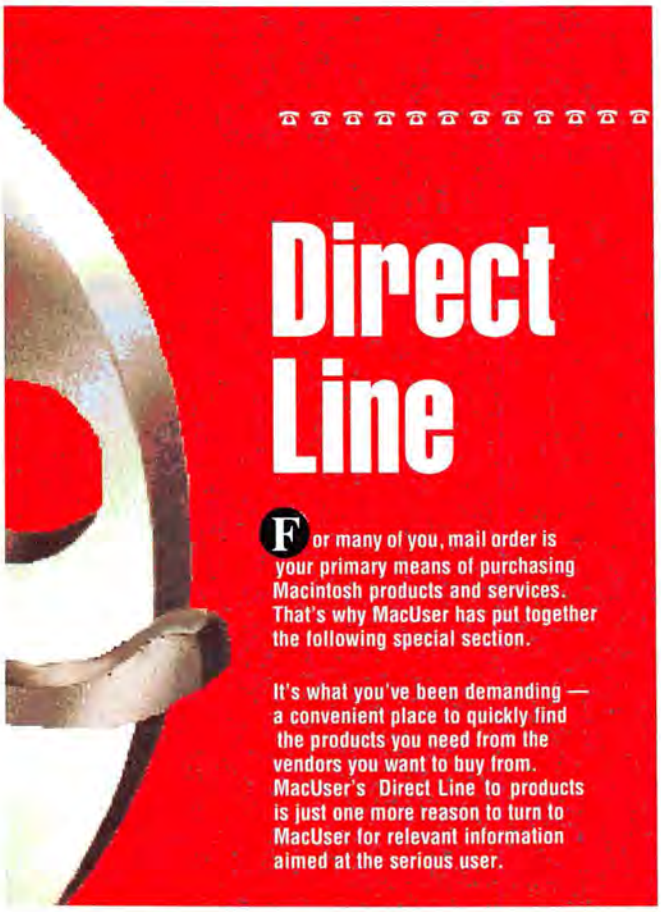
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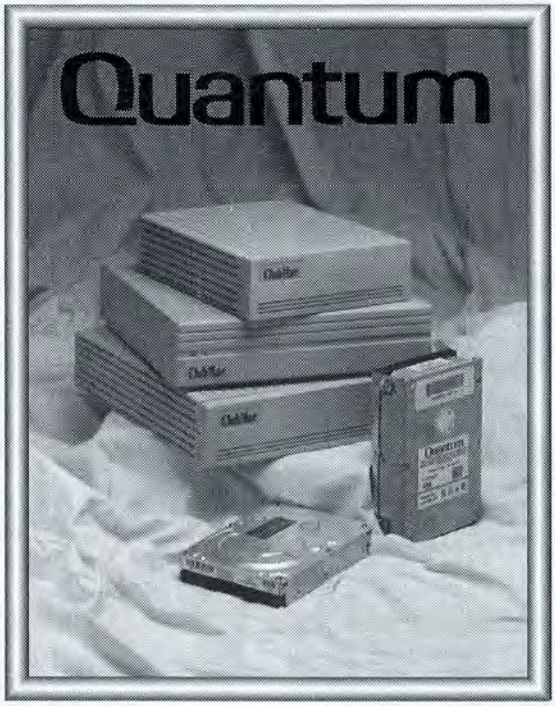
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210mb	3.5" PRO	10ms	$619	$679
240mb	3.5" PRO	10ms	$669	$729
425mb	3.5" PRO	8ms	$1179	$1239

Quantum drives carry a TWO year warranty. 3.5" Half Height drives are the PRO series. 3.5" Low Profile drives are the LPS series. *3.5" Low Profile drives for the Mac Classic, LC and IIsi. All internals drives include a mounting kit. Externals manufactured by ClubMac. Quadra 900 bracket add $10

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330mb	10.7ms	$1249	$1349
420mb	14ms	$1269	$1329
645mb	11.9ms	$1619	$1719
645mb	15.5ms	$1389	$1489
1.0GIG	15ms	$1869	$1969
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345mb	16ms	$1189	$1289
645mb	16ms	$1259	$1359
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340mb	14.5ms	$939	$999
535mb	12ms	$1449	$1509
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ETC 213 Mb Maxtor LXT, 15 msec	$679.00
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ETC 337 Mb WREN-Runner-1, 10.7 ms	$1429.00
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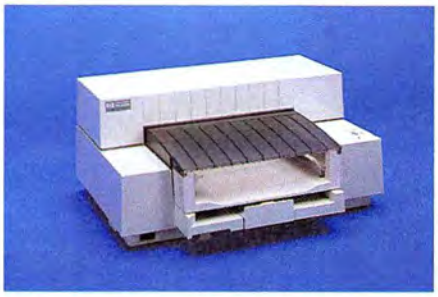
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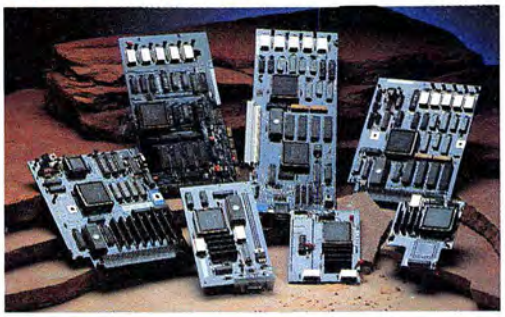
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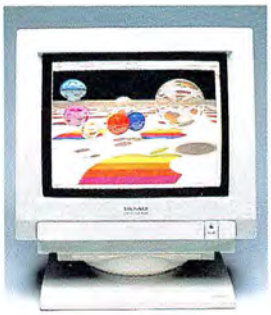
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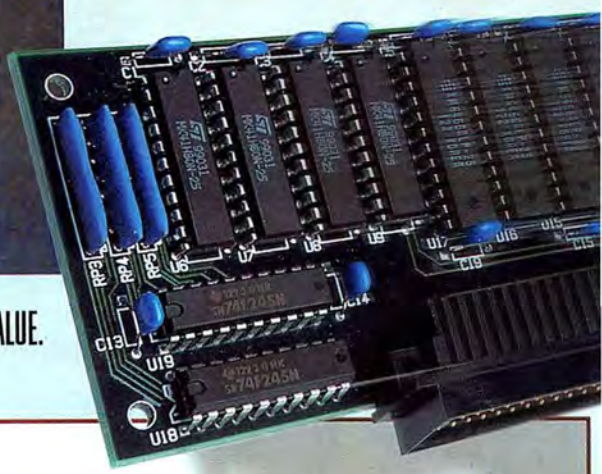
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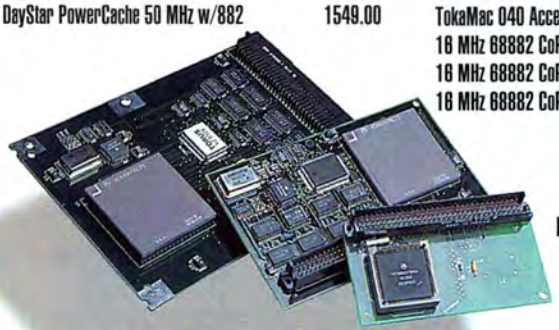
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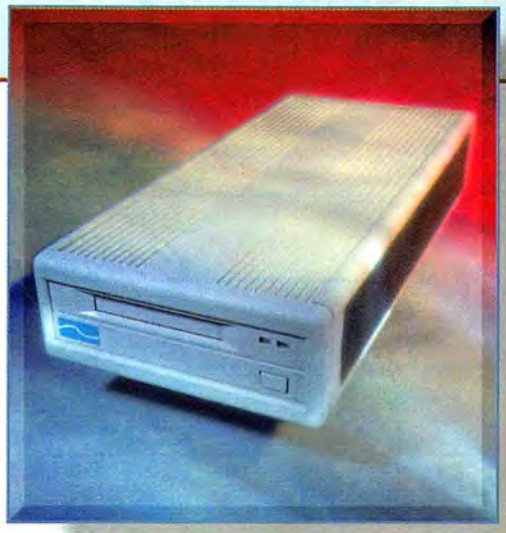


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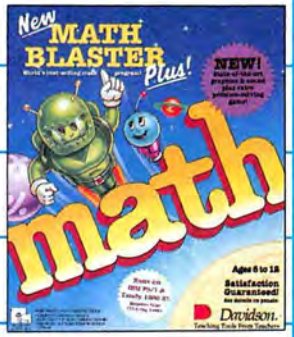
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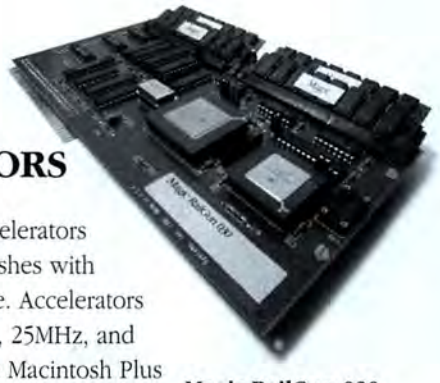


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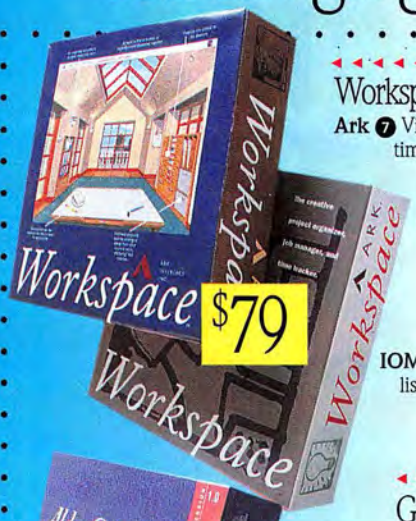
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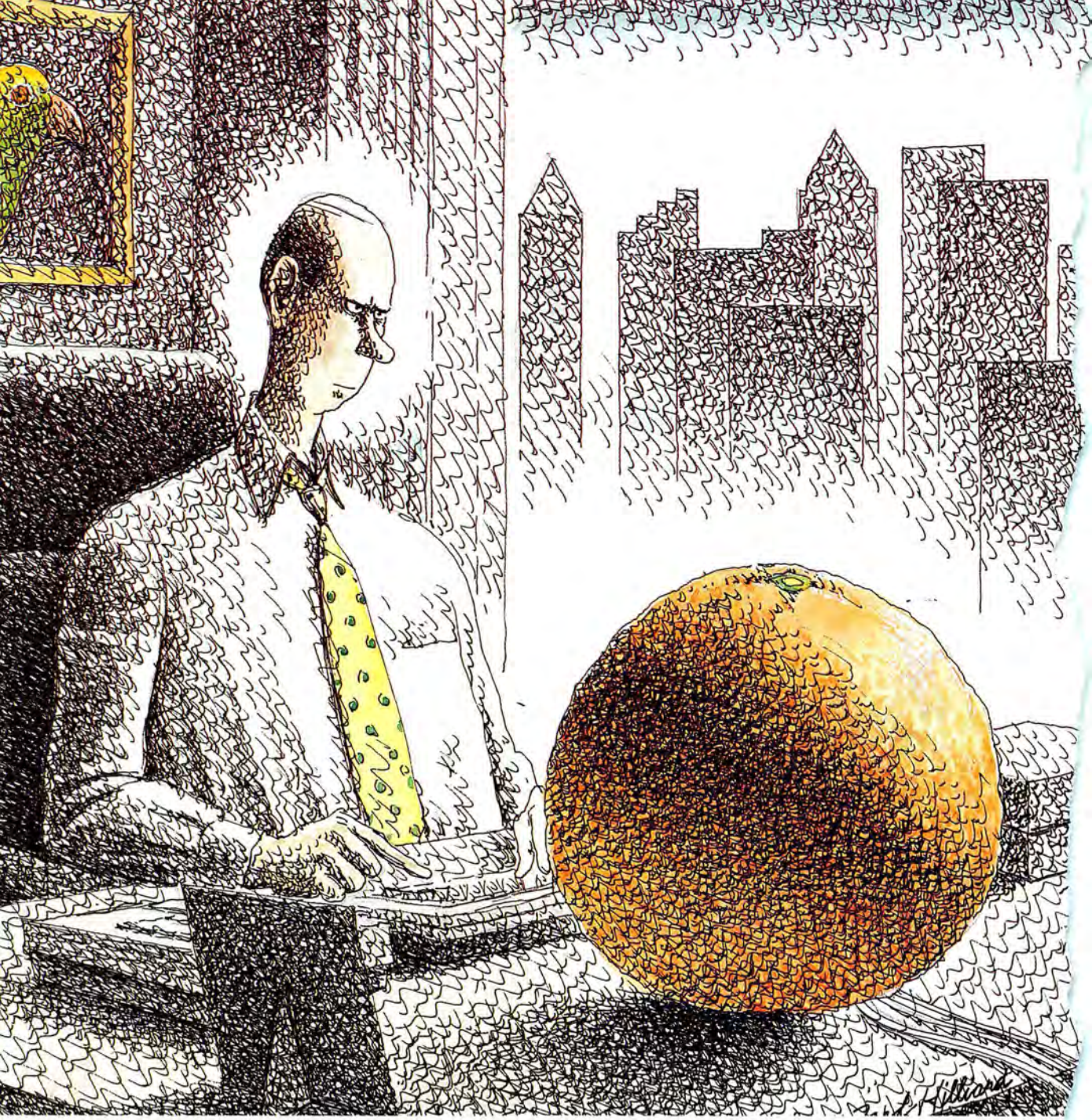
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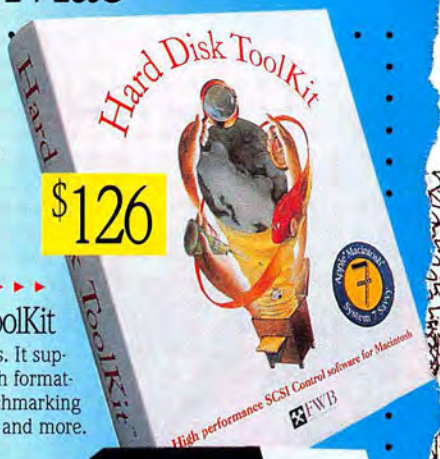
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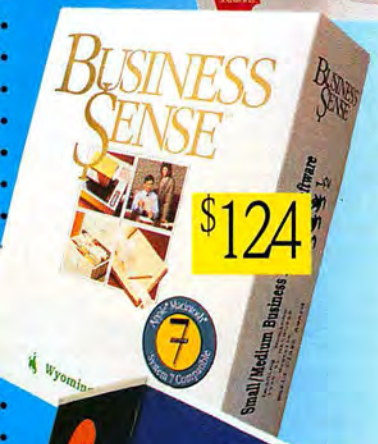
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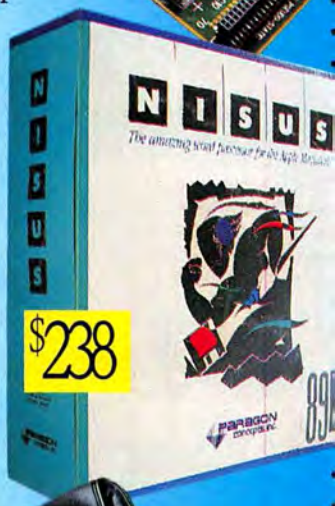
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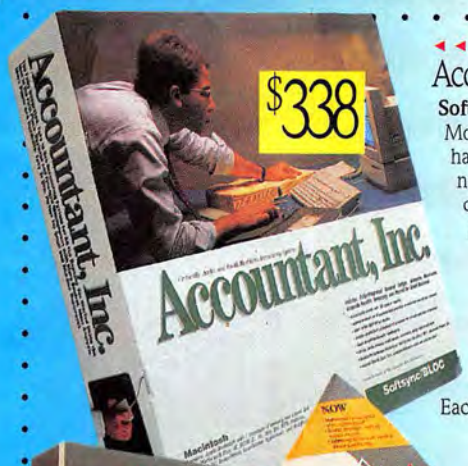
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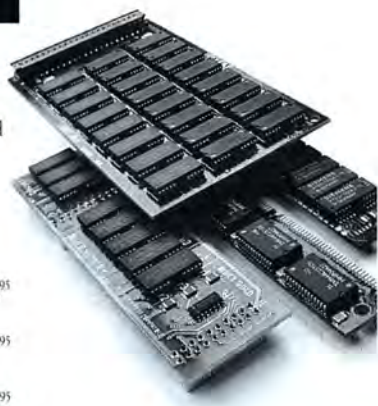
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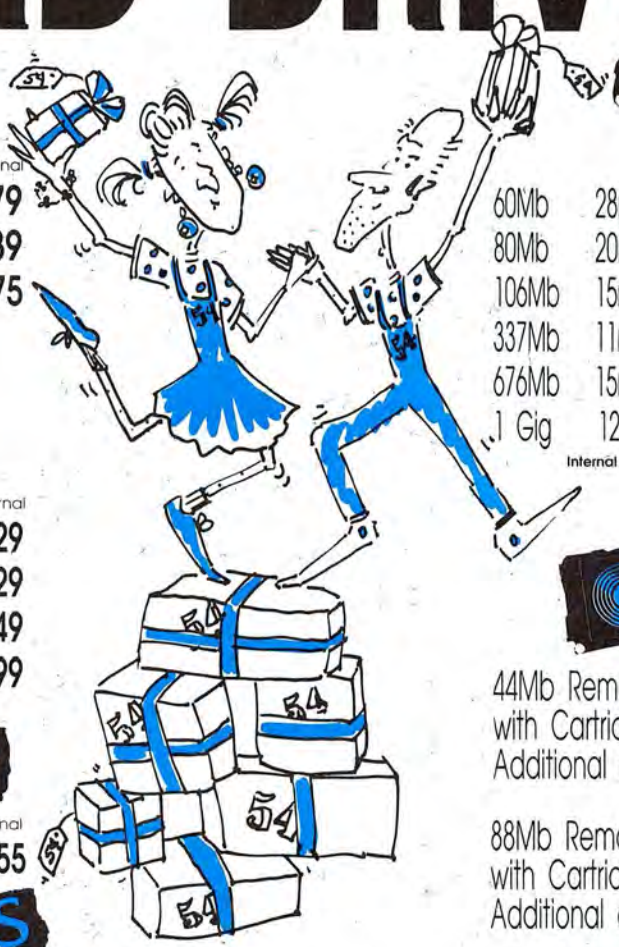
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AND LET OUT A SIGH. "HHHHHMM. HARVEY MUST HAVE SOMEHOW CAUGHT WORD OF MY EXCURSION WITH MAC TO THE MICROPOLIS COAST. IF ONLY HE REALIZED THAT OUR RELATIONSHIP IS AN EXTERNAL CASE!" SHE THOUGHT. THE TRAIN RATTLED ON. HER MIND WHIRLED. SUDDENLY, WHAT TO HER WANDERING EYES SHOULD APPEAR, WHOLESALE HARVEY COMING NEAR. HE PUSHED THROUGH THE QUANTUM CROWD AND SPOTTED THE



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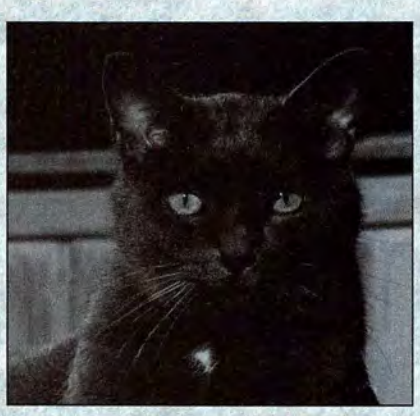
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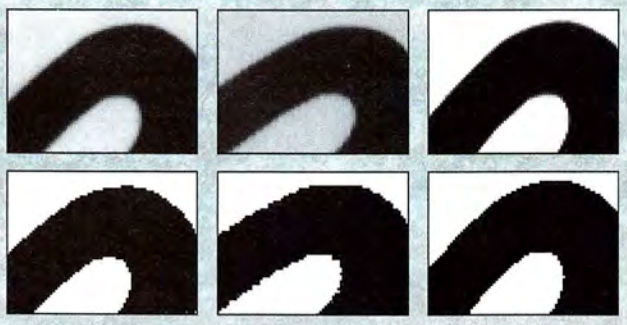
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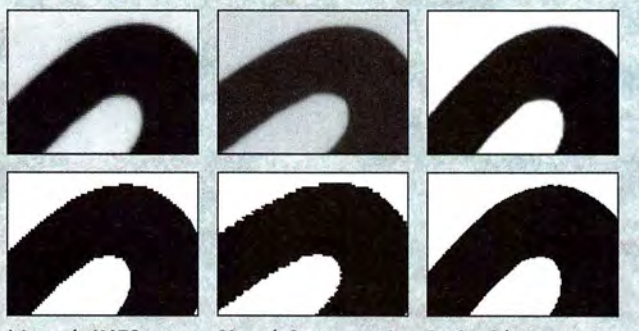
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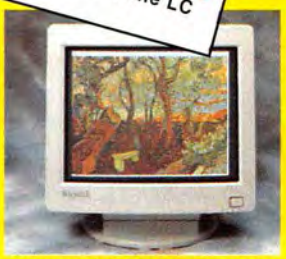


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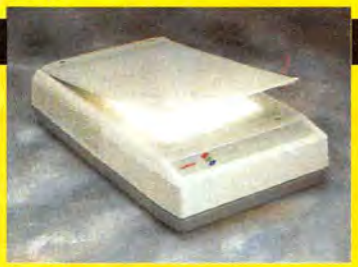
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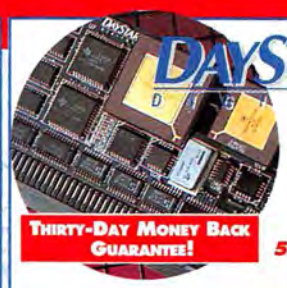
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283-290

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306-307

Product Categories

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Data Recovery Services	284	295	306
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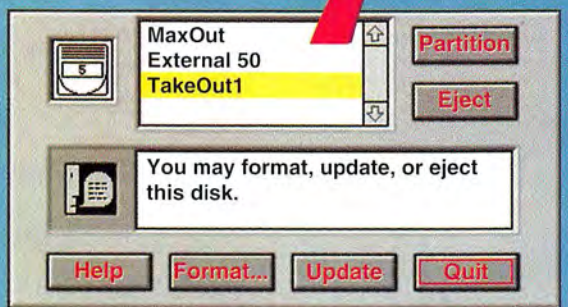
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Professional Layout, the board layout and editing package, includes parts placement for component positioning. The program may be used on its own, or with DesignWorks and AutoRouter for full integration of the Professional System.

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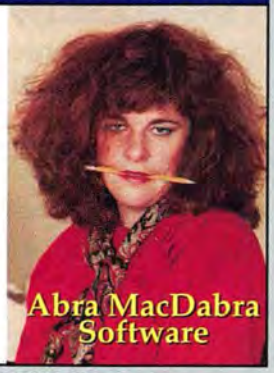
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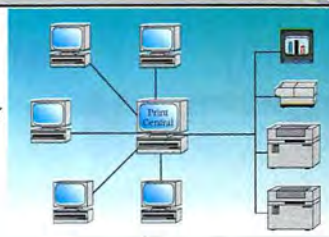
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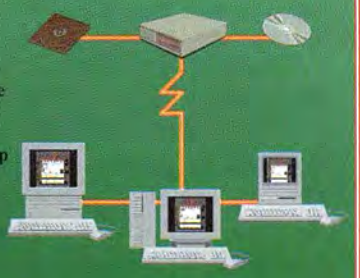
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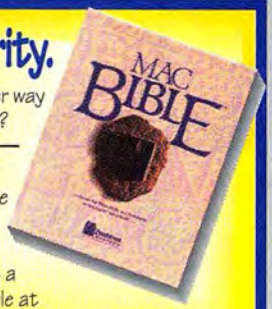
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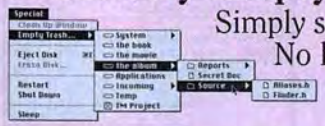
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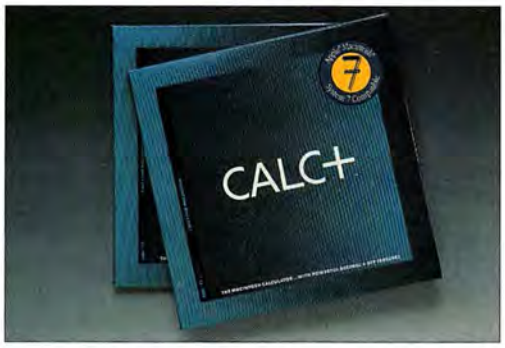
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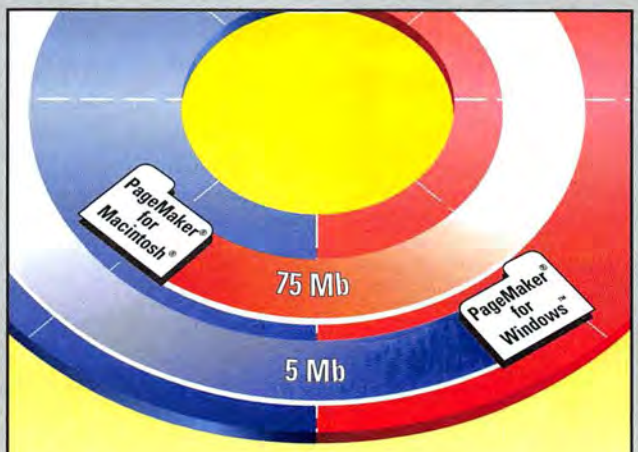
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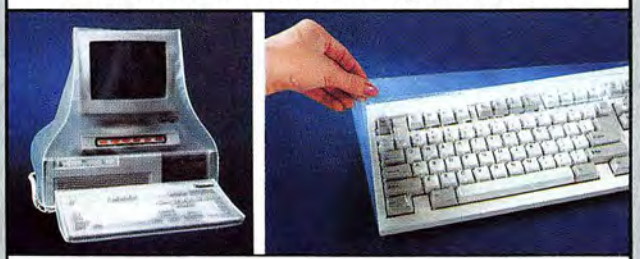
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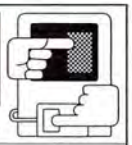
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Volume 6, Number 1
ISSN 0889-9762
September 2, 1991

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Editing Aids: A Product Update 14

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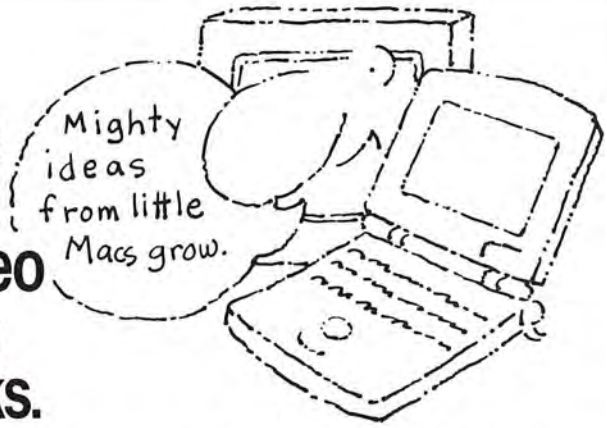
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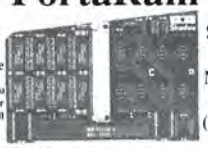
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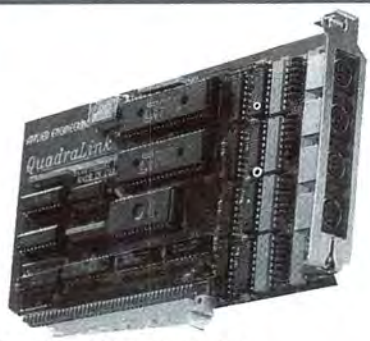
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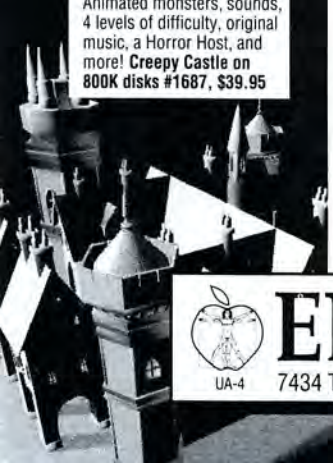
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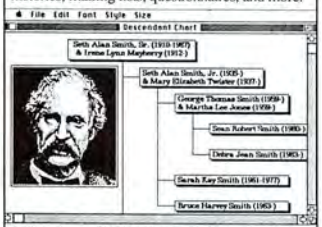
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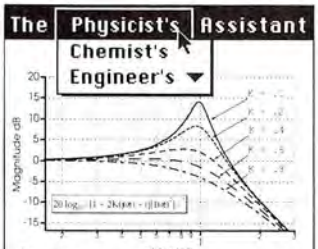
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Worse than an inability to communicate the obvious is Apple's failure to capitalize on an opportunity of a corporate lifetime. To explain this opportunity, I first have to discuss a concept I call the chain reaction of acceptance.

There is a core group of movers and shakers who promote and push technology and guide trends. There are writers, magazines, analysts, and user groups. When a critical mass of interest is achieved, something magical happens and suddenly a company becomes a leader (as above). Once influence peddlers have adopted a position about a product or an idea, they then attempt to protect their reputation by promoting that position to others. When enough of the influencers agree to adopt something, it becomes like atomic fission — a chain reaction of acceptance. Of course, it's not *always* acceptance that results from the chain reaction. It can just as easily be a negative result. The Apple III disaster years back was just such an instance.

The defunct progenitor of the Mac, the Lisa computer, was another interesting study, because both a positive *and* a negative fissionlike reaction took place. Ultimately, the machine's high price killed it. But the Lisa's price was too high only because everyone agreed that it was. Here comes my point: The Mac IIfx costs as much as the Lisa did, and nobody complains about its price. A Mac IIfx does little more than any other Mac does, except that it does it faster. But it costs a mint. Somehow it's not chatted up as being expensive. Why? Disregarding the fact that the Lisa was a dog by comparison, what makes the Mac IIfx so immune to the same price criticism that hampered the Lisa?

I've wondered about this and figured that there was a simple answer. Apple has seeded editors, writers, and analysts with Mac IIfx's via its loan program. I don't recall the company being that aggressive with the Lisa. But thinking back, it was a situation in which many of us who might have been loaned a Lisa didn't want one. Not so with the IIfx. Everyone lusts after a Mac IIfx. It's become, in fact, a prestige machine — a Ferrari of Macs. It's very cool. It's like a cult. It happened spontaneously, and Apple should take advantage of it.

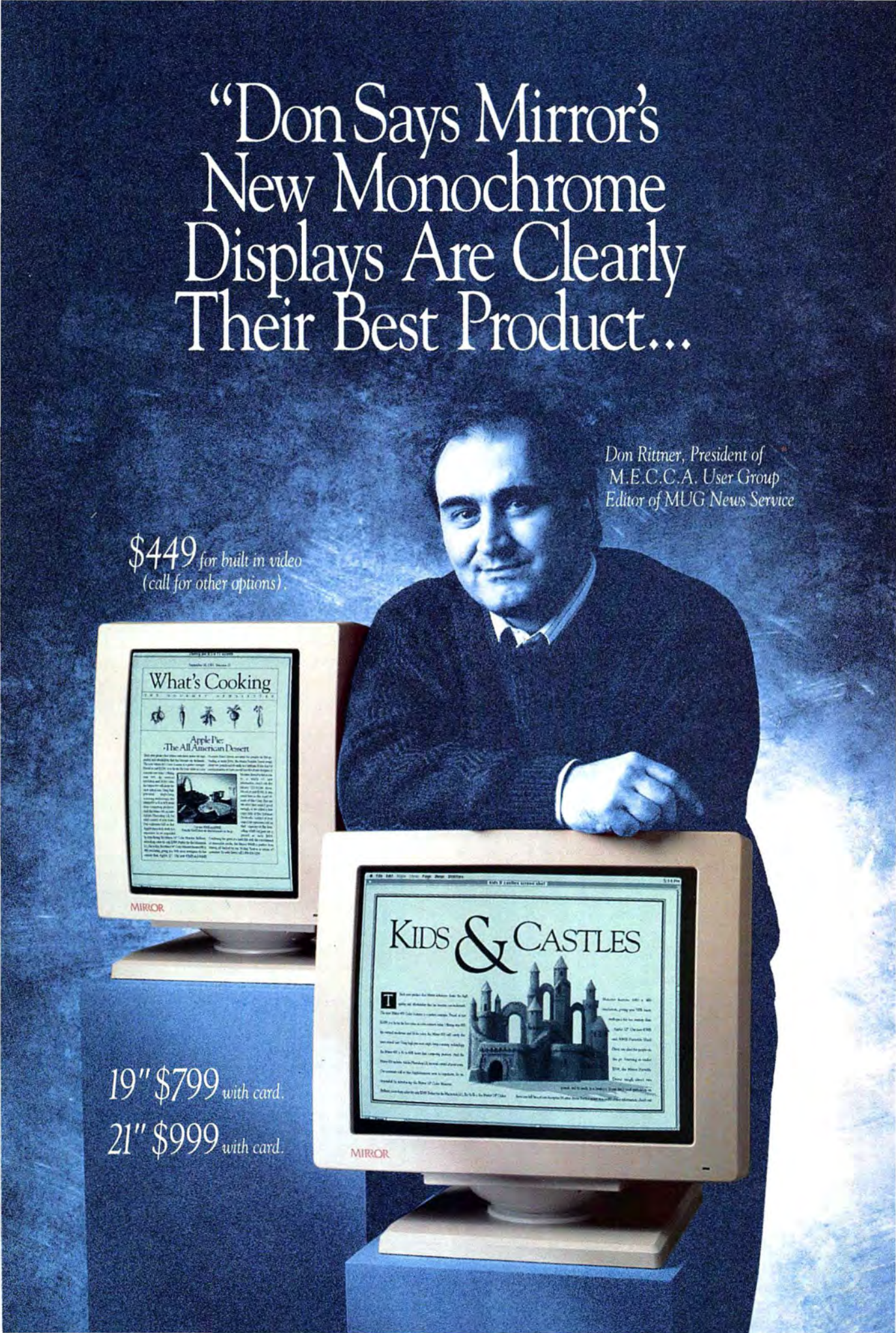
Apple has failed to capitalize on the prestige, Ferrari aspect of any of its high-end machines. How often does an opportunity come along to effortlessly sell a desktop computer that's so expensive? When the 486 PC-clone machines first arrived on the scene, they were $10,000 a pop. Within a couple of years, they're down to $2,500 — such a deal! There go the profit margins so adored by the manufacturers. Apple seems to have reached a point at which it can maintain a $10,000 system (For you? $9,999!) at the high end and make some decent profit from it. Years ago, before the auto industry fell apart, a GM executive said that the company made its best profits from the Cadillac *and* it had happy customers to go along with the profits.

Apple has mistakenly tried to project its entire line of machines, except perhaps the Classic, as Cadillacs. It's time to differentiate the line. A Buick and an Oldsmobile and a Chevrolet Caprice are as alike as any three Macs. Conversely, any three Macs are as different from each other as a Buick, an Oldsmobile, and a Caprice are. Apple has failed to market anything but a generic Mac — the Power to Be Your Best (ick!). The public thinks: Mac — one machine, a few different models. You have a two-door and a four-door and a station wagon. But a IIfx isn't a four-door Mac Classic or whatever. It's a Ferrari. The Classic is a Camry.

Apple must begin to differentiate its line of machines better. It can start by taking a hint from the LC design team and retooling the cases so they have some pizzazz and differentiation. If you have a Ferrari, you expect it to look good. Heck, people even want their Chevys to look good. In its heyday, Chevys did look good. They don't any longer, and see what happened? Mac sales will soar when the whole line becomes as cool-looking as the LC and the company gets its marketing strategy together. Think Ferrari, John, Ferrari.

ILLUSTRATION: ROBERT ZIMMERMAN

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It gives you large screen color for a monochrome price, 640 X 480 resolution for 56% more work-space than Apple's 12" monitor, and brilliant color from the built-in video port of your LC, IIsi, IIci or Quadra.

"Mirror's done it again. This is a real breakthrough, a 16" Trinitron for $1299."

— Hilary Koppel

Stephen is not the only one excited about Mirror color systems. Hilary loves the new 16" Trinitron. Designed for the pro who demands the highest quality, but can't justify the high cost, the Mirror 16" Display has 832 X 624 resolution for comfortable viewing of two-page layouts or large spreadsheets.

Use Mirror's 16" Trinitron with the built-in video port on IIsi, IIci or Quadra, or our optional video card for any MacII.

If you need a no compromise two-page color display, Michael advises checking out the Mirror ProView.



Available in 8-bit or 24-bit models, the ProView is "a real bargain" according to the May '91

Michael Levy, member

Hilary Koppel, member







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issue of *MacUser* magazine. Featuring world class Trinitron quality so your most critical projects look flawless, the ProViews are still affordably priced.

"The ProView can handle my most demanding applications with ease; and best of all, I can afford it."

— Michael Levy

The Mirror Color Scanner, according to Nancy, is a remarkable product; 600 dpi 24-bit scanning for only $1299 including Adobe Photoshop 2.0. It has more features and higher quality than competing models, yet is priced far less.



600 Color Scanner

"This would be a good scanner for $2000; for $1299 it's unbelievable."

— Nancy M. Benz

In December 1991 *MacUser* gave this scanner 4 mice, saying, "the quality of the hardware is excellent." and it "produced the best images."

If you need to get color or gray-scale images into your work, the Mirror Color Scanner is for you.



"Mirror's 88MB SyQuest drive solved my growing storage problem."

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PART 4

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